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Part 1

AUTHORIZATION FOR NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION FOR FISCAL YEARS 1984 AND 1985

MAY 16, 1983.—Ordered to be printed

Mr. FUQUA, from the Committee on Science and Technology, submitted the following

REPORT

together with

MINORITY AND ADDITIONAL VIEWS

[To accompany H.R. 2900 which on May 4, 1983, was referred jointly to the Committees on Science and Technology and Merchant Marine and Fisheries]

[Including cost estimate of the Congressional Budget Office]

The Committee on Science and Technology, to whom was referred the bill (H.R. 2900) to authorize appropriations for atmospheric, climatic, and ocean pollution activities of the National Oceanic and Atmospheric Administration for the fiscal years 1984 and 1985, and for other purposes, having considered the same, report favorably thereon without amendment and recommend that the bill do pass.

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I. Purpose of the Bill

The purposes of the bill are: to ensure that the National Oceanic and Atmospheric Administration (NOAA), the lead agency for civil oceanic and atmospheric activities and programs, operates under a clear statutory chapter; to simplify, streamline, and consolidate the authorization of appropriations for NOAA, within the Department of Commerce, such that NOAA's programs can be viewed in a coherent fashion, and such that the authorization process, previously fragmented and unduly time-consuming, will be significantly reduced; to reauthorize the National Climate Program Act; to reauthorize the National Ocean Pollution Planning Act; to reauthorize Title II of the Marine Protection, Research, and Sanctuaries Act, and to reauthorize the Weather Modification Reporting Act.

II. Committee Actions

The Subcommittee on Natural Resources, Agriculture Research and Environment held three days of hearings on the atmospheric, climatic, and ocean pollution activities of the National Oceanic and Atmospheric Administration on March 1, March 9, and March 31, 1983. Testimony was received from NOAA officials and more than 15 public witnesses. In response to these hearings, a Committee print of the bill authorizing appropriations for NOAA was ordered reported by the Subcommittee on May 3, 1983 by voice vote; on May 4, 1983, Mr. Scheuer (with Mr. Brown of California, Mr. Andrews of Texas, Mr. MacKay, Mr. Torricelli, and Mr. Lewis of Florida) introduced the Committee print as H.R. 2900. The full Committee on Science and Technology ordered H.R. 2900 reported on May 10, 1983 by voice vote.

As ordered reported, the bill has several major provisions.

1. It authorizes $605,569,000 for NOAA's atmospheric, climatic, and ocean pollution activities for fiscal year 1984, and $635,848,000 for fiscal year 1985. The fiscal year 1984 authorization is $58,684,000 more than the President's request of $546,885,000.

2. It contains substantial amendments to both the National Climate Program Act and Title II of the Marine Protection, Research, and Sanctuaries Act.

3. It prohibits the transfer of civil land, meteorological, and future ocean remote-sensing satellites to the private sector without prior Congressional approval.

4. It authorizes $4,000,000 to plan for the continuation of a civil land remote-sensing satellite system to assure data continuity.

5. It directs the National Academy of Sciences to conduct a study of the National Weather Service and to make recommendations on how the NWS can incorporate new technologies to provide effective weather services to meet national needs.

6. It mandates a systematic review procedure before any Weather Service Office or Weather Service Forecast Office is closed or consolidated.

III. Background and Need for the Legislation

The National Oceanic and Atmospheric Administration was created by Reorganization Plan No. 4 as part of the Presidential reorganization in 1970. Since its establishment NOAA has obtained most of its funding for its major programs through direct appropriations with little or no authorization or congressional oversight. Authorization actions that did occur were limited to a few specific areas of interest such as ocean pollution and ocean waste disposal. Because of this lack of a comprehensive view of NOAA and its programs, the Committee decided in 1980 to authorize those programs and activities that fall directly in the Committee's jurisdiction, namely the atmospheric, climatic, and ocean pollution activities. These programs comprise well over one-half of NOAA's total budget. In 1981, a bill (H.R. 2803) authorizing appropriations for NOAA's atmospheric, climatic, and ocean pollution activities passed the House as reported by the Committee on Science and Technology. In 1982, another NOAA authorization bill (H.R. 6324), which had been developed cooperatively by the Committee on Science and Technology and the Committee on Merchant Marine and Fisheries, passed the House. In neither 1981 nor 1982, however, did the Senate take final action on these NOAA authorization bills.

IV. Explanation of the Bill

Introduction

The paragraphs that follow provide a title-by-title description of the purpose and content of H.R. 2900. Table I provides a summary of the appropriations which are authorized by the bill.

The first column in Table I shows the level of funds appropriated to the agency in fiscal year 1983. The second column shows the level of fiscal year 1984 base funding for each category contained in Section 201(a) of the bill. Column 3 shows the fiscal year 1984 Presidential request for NOAA.

The Committee's recommendation for fiscal year 1984 is shown in column 4, while the fifth column compares this recommendation with President Reagan's request.

TABLE 1.—FISCAL YEAR 1984 NOAA AUTHORIZATION

[In thousands of dollars]

Budget category	Fiscal year—				Recommendation versus request
	1983 appropriation	1984 base [1]	1984 request	1984 recommendation	
Ocean research	31,962	32,362	24,435	35,662	+11,227
Atmospheric programs	309,303	320,154	308,308	325,954	+17,646
Satellites services/data services	196,385	[2] 234,724	212,953	241,953	+29,000
National Climate Program Office	1,100	1,109	1,189	2,000	+811
Total	538,750	588,349	546,885	605,569	+58,684

[1] Fiscal year 1984 base is administration estimate of funds needed to continue programs at fiscal year 1983 levels.

[2] Fiscal year 1984 base for satellite programs includes funds to maintain 2 polar-orbiting satellites and funds needed to assume operational control of Landsat program.

SECTION 1

This bill shall be cited as the "Atmospheric, Climatic, and Ocean Pollution Act of 1983".

TITLE I—DECLARATION OF FINDINGS AND PURPOSES

It is the Committee's intent in Title I to emphasize the vital role that the National Oceanic and Atmospheric Administration plays in the Nation's welfare, economic self-sufficiency, and national security. Section 101 states the broad goals of NOAA, which include the development and operation of national programs to—

1. manage and conserve selected marine resources for the economic and social good of the Nation;
2. monitor and predict weather and environmental conditions for the protection of life and property;
3. archive, analyze, and disseminate data on geophysical and solar-terrestrial phenomena;
4. provide basic maps, charts, surveys, and specialized data for safe navigation; and
5. provide research to advance oceanic and atmospheric science and technology for the better management of the environment and the rational use of our natural resources.

Section 102 states the purposes of the bill—

1. To designate NOAA as the lead agency for civil oceanic and atmospheric activities and programs;
2. To ensure that NOAA operates under a clear statutory charter;
3. To streamline the authorization process for NOAA; and
4. To develop a comprehensive authorization process for NOAA whereby its programs are reviewed and overseen in a coherent and holistic fashion.

TITLE II—GENERAL PROGRAM AUTHORIZATIONS AND REPORTING REQUIREMENTS

Title II of the bill provides for authorization of appropriations for the atmospheric, climatic, and ocean pollution activities of NOAA for fiscal years 1984 and 1985. The four budget categories listed in Subsection 201(a) do not correspond directly with the subactivities used by NOAA in developing their budget request. Rather, these categories were generally formed by consolidation of various line items in NOAA's budget. Further explanation is provided below.

The following paragraphs describe programs contained within each program area listed in Subsection 201(a) and the corresponding Committee action for fiscal year 1984. Funding levels for each program area in fiscal year 1985 are 5 percent higher than levels set for fiscal year 1984, reflecting the Committee view that programs in fiscal year 1985 should continue at fiscal year 1984 levels, with a small increase for inflation.

SECTION 201(a)(1) OCEAN RESEARCH

This budget category is comprised of four subactivities from NOAA's fiscal year 1984 budget submission: Ocean Climate Research; Ocean and Great Lakes Assessment and Research; Ocean and Great Lakes Services Research; and the National Marine Pollution Program. Total funding requested by NOAA for the various activities under the category of Ocean Research, as defined in this legislation, is $24,435,000 in fiscal year 1984, with a total of 259 permanent positions. There is a net decrease in requested funding for these activities of $7,927,000 from the fiscal year 1984 base and a proposed decrease of 136 positions.

1. PROGRAM DESCRIPTION

NOAA conducts research and monitoring activities to understand and to predict ocean dynamics and the interaction between the ocean and its boundaries; to develop an understanding of ocean resources and the changes that may result from human activities; to develop a sound scientific basis for management decisions associated with the utilization of marine waters and resources; and to promote safety and economy in marine activities.

Ocean climate research.—NOAA's ocean climate research is aimed at gaining better understanding of ocean dynamics, variability of sea-surface temperatures, and air-sea interaction processes and their relation to climate variability, with an ultimate goal of making climate predictions. The Equatorial Pacific Ocean Climate Studies (EPOCS) is a large-scale experiment to gather data and perform analyses on the influence of the equatorial Pacific Ocean in interannual climate variations. The Subtropical Atlantic Climate Studies (STACS) is another research program designed to determine heat transport to the northern subtropical Atlantic Ocean. Ocean climate modelling, analyses, and diagnostics are essential components of the NOAA climate research program. Ocean climate modelling and analyses concentrate on computer models of the global ocean-atmosphere coupled system to study such effects as global heat, salinity, and carbon dioxide balances; seasonal variations in oceanic transport; and the response of tropical oceans to fluctuating winds as these phenomena affect climate variations.

For fiscal year 1984, NOAA is requesting an increase of $2,500,000 and 5 positions in ocean climate research, to initiate (1) U.S. participation in Ocean-Atmosphere Climatic Interaction Studies (OACIS) ($2,250,000 and 5 positions) and (2) development of "second-generation" drifting buoy systems for use in OACIS and other ocean climate research projects ($250,000). With these increases, the total NOAA fiscal year 1984 request for ocean climate research is $10,509,000, with 95 permanent positions.

Ocean and Great Lakes assessment and research.—To gain adequate understanding of man's impact on the marine environment, NOAA conducts research on ocean properties and processes, Great Lakes properties and processes, and ocean waste disposal. In addition, there is a NOAA capability for rapid response to study and monitor spills of oil and hazardous materials.

Oceanic research focuses on ecological characteristics and processes that are important to man's uses of nearshore, continental

shelf, and oceanic areas; research is related primarily to potential impacts of man's activities in these areas. Great Lakes research is directed toward understanding the natural properties and processes of the Great Lakes and their watershed and toward predicting the potential effects of natural and man-induced changes to this region. These latter activities are performed mostly through NOAA's Great Lakes Environmental Research Laboratory (GLERL) in Ann Arbor, Michigan.

NOAA's ocean waste disposal research has both a generalized and a regionally site-specific focus. The generalized focus is based in two legislative authorities: (1) section 202 of the Marine Protection, Research and Sanctuaries Act (P.L. 92–532), emphasizing long-term effects of pollutants on ocean ecosystems and (2) section 6 of the National Ocean Pollution Planning Act (P.L. 95–273), which authorizes research support to investigations in areas which have been identified as priority needs in the five-year National Marine Pollution Plan. Regional and site-specific studies are undertaken to determine and evaluate environmental consequences of estuarine and nearshore waste disposal activities. The Hazardous Materials Response Project has been established under the National Contingency Plan for Oil and Hazardous Substance Response, based on the Comprehensive Environmental Response Compensation and Liability Act (P.L. 96–510). Under this project, NOAA scientists among others, support the Coast Guard on-scene coordinator, who is responsible for coastal Federal actions dealing with such spills.

In ocean and Great Lakes assessment and research, NOAA requests a decrease of 119 positions and $9,561,000 in fiscal year 1984. These proposed decreases include reduction of regional projects and ocean dumping research ($6,833,000 and 75 positions), termination of research and assessment activities and closure of the Great Lakes Environmental Research Laboratory ($2,478,000 and 44 positions); and reduction in Chesapeake Bay Studies ($250,000). With these proposed reductions and terminations, total requested funding for this line item by NOAA in fiscal year 1984 is $10,540,000 with 129 permanent positions.

Ocean and Great Lakes services research.—Research is conducted under this program to (1) improve and expand NOAA's ability to predict hazardous or special marine environmental conditions important to the safety and economy of martime activities and (2) develop improved information and tools for ocean and Great Lakes services use. This research seeks to improve understanding of physical process that govern exchanges of energy and moisture between the ocean and atmosphere and contribute to the generation of severe marine weather and to apply this understanding to the development of improved forecasting techniques. Specific research is conducted on hazardous marine winds and waves, coastal currents and hydrography, sea-ice and lake-ice distribution and dynamics, storm surges, seiches, and tsunamis. In the Great Lakes area, research is conducted to improve understanding and prediction of variables and phenomena involved with warning and forecast services.

NOAA proposes a decrease of 22 positions and $1,166,000, resulting from termination of marine services research at the Great Lakes Environmental Research Laboratory, which is proposed to be

closed by NOAA. With this reduction, the total funding requested for fiscal year 1984 for ocean and Great Lakes services research is $2,403,000, with 29 permanent positions.

Mational marine pollution program.—This line item implements NOAA responsibilities for preparing and updating the five-year Federal Marine Pollution Plan, coordinating implementation of recommendations in the plan, and facilitating use of Federal resources in the conduct of marine pollution research, development, and monitoring as required by the National Ocean Pollution Planning Act (P.L. 95–273). The National Marine Pollution Program Plan will be revised in 1983. Activities in fiscal year 1984 will include continued efforts to assure that Federal programs are directed toward priority programs and that Federal resources are used effectively. The $683,000 and 6 positions requested for this item for fiscal year 1984 do not include any changes from the base.

2. COMMITTEE ACTION

The budget request for Ocean Research is $24,435,000, or $7,927,000 below the fiscal year 1984 base amount. The Committee recommends that $35,662,000, or $11,227,000 above the Administration request, be authorized for this category and that the $11,227,000 be allocated as follows: a $1,532,000 increase in New York Bight/Hudson-Raritan studies; a $460,000 increase in the Northeast Monitoring Program; a $1,097,000 increase in Puget Sound studies; a $1,282,000 increase in other ocean dumping projects; a $2,462,000 increase for ocean dumping studies; a $3,644,000 increase for the Great Lakes Environmental Research Laboratory; a $250,000 increase for Cheaspeake Bay studies; and a $500,000 increase as mandated by section 404 of this bill.

Committee views on other projects conducted under this category are provided elsewhere in this report in the discussions of Title IV of H.R. 2900.

SECTION 201(a)(2) ATMOSPHERIC PROGRAMS

Atmospheric programs are conducted by NOAA under two of its current budget activities: Public Warning and Forecast Services; and Atmospheric and Hydrological Research. Within the agency these activities are performed through the National Weather Service and the Environmental Research Laboratories.

The Atmospheric Programs activity is intended to provide timely and accurate meteorological, hydrological, and oceanographical warnings, forecasts, and planning information to ensure public safety, mitigate property losses, and improve economic efficiency of activities dependent on environmental conditions. Under this activity, research is conducted in atmospheric and hydrologic processes and conditions to provide a basis for improvement of short-term and long-term environmental predictions. The total NOAA request for fiscal year 1984 Atmospheric Programs is $308,308,000, a net decrease of $11,846,000 from the fiscal year 1984 base level of $320,154,000. These totals do not include the Administration's request of $1,189,000 for the National Climate Program Office, authorization for which is contained in Section 201(a)(4).

1. PROGRAM DESCRIPTION

a. Public warning and forecast services

Meteorological, hydrological, and oceanographic warnings and forecasts and provided through NOAA's national network of Weather Service Forecast Offices (WSFOs), Weather Service Offices (WSOs), and River Forecast Centers (RFCs). The warning and forecast program is supported by continuous monitoring of the state of the atmosphere, rivers, and oceans. Data are communicated throughout the network of offices for preparing warnings and forecasts, which are disseminated to the public directly by the National Weather Service (NWS) and in cooperation with the mass media. At three major guidance centers—the National Meterological Center (NMC), the National Severe Storms Forecast Center (NSSFC), and the National Hurricane Center (NHC)—data are processed and analyzed by computers, developing warning and forecast guidance products which are distributed to field forecasters. The Administration proposes a fiscal year 1984 funding level of $264,936,000 for Public Warning and Forecast Services, a reduction of $7,285,000 and 242 permanent positions from fiscal year 1984 base levels.

Observations.—Surface observations of temperature, atmospheric pressure, humidity, wind speed and direction, precipitation, visibility, cloud cover, and other weather elements are made with ground-based instrumentation at 286 NOAA-staffed stations, 215 contract stations, 345 Federal Aviation Administration (FAA) stations, and 320 industry-manned airport stations. Additional surface observations, including water temperature and ocean wave conditions, are taken by 1,800 high-seas and 200 coastal and Great Lakes cooperative observing ships, by 14 deep-ocean and 8 Great Lakes moored data buoys, and through cooperative agreements at coastal and offshore manned facilities. Atmospheric soundings are taken from the surface to about 100,000 feet at 94 NWS stations, using balloon-borne instrumentation to provided distribution of temperature, pressure, humidity, and wind. Temperature and precipitation are provided daily from 12,000 cooperative stations; hydrological observations are also provided at 6,000 of these locations. In addition, hydrological data are obtained through interrogation by telephone or by the GOES satellite of 500 Automatic Hydrologic Observing Systems.

A network of 56 long-range radars, supplemented by 71 local warning radars, provides round-the-clock surveillance of conditions capable of developing into severe weather, detecting and tracking tornadoes and severe thunderstorms, and measuring heavy rains that cause flash floods. NOAA, the Department of Defense (DOD), and the FAA are developing jointly a Next Generation Weather Radar (NEXRAD) system, with Doppler capability, to replace the existing network of aging weather radars. In fiscal year 1984, the NEXRAD program will continue the validation phase activities begun during fiscal year 1983.

The GOES satellite system provides near-continuous pictures of weather phenomena which could be hazardous to general aviation and of hurricanes and other dangerous storms at sea beyond the range of radar. These pictures fill distance and time gaps in obser-

vations from surface-based networks and are necessary to improve short-term warning and advisory services to the public.

An increase of two positions and $5,700,000 above the fiscal year 1984 base level is requested to augment the NEXRAD program. This increase is offset by a proposed decrease of 25 positions and $1,535,000 to be realized through conversion of WFSOs to WSOs, termination of the NWS Southern Regional Headquarters, and curtailment of other services, so that the net increase for observations is $4,165,000, providing a fiscal year 1984 requested level of $93,292,000 for observations.

Communications.—A complex network of leased and Government-owned communications facilities and equipment provide for the collection and distribution of data used in NOAA weather and flood warning and forecast services. The Radar Report and Warning Coordination (RAWARC) system distributes radar, severe weather, hydrologic reports and warnings, and general weather information not available on scheduled national circuits, to provide NWS coordination of hazardous weather warnings. NOAA uses facilities of other Federal agencies, including those of DOD, the FAA, and the Coast Guard, to collect and distribute a significant portion of its weather information. NOAA also operates a number of facsimile circuits, which are the principal method of distribution, in graphic form, of guidance products prepared at the National Meteorological Center (NMC). As the Automation of Field Operations and Services (AFOS) assumes communications functions, portions of these circuits will be phased down. In addition to NOAA offices, other Government agencies, airlines, and other public and private subscribers are served by all these systems.

To establish a basis for warnings and forecasts beyond 24 hours, the World Weather Watch system provides an international program of mutual cooperation for exchange of observational data through a system of communications circuits. Circuits currently serving the World Meteorological Center in Washington, D.C., collect data from the Far East through Tokyo; from Europe through Bracknell, England; from Canada through Toronto; and from South and Central America and the Caribbean through terminals in Brazil, Argentina, Cuba and other Caribbean islands, Mexico, and Central America.

A decrease is requested of one position and $3,534,000, associated with consolidating management of the NWS Pacific and Alaska regions, elimination of teletype and facsimile back-up capability to AFOS operations, and reductions in other communications support costs. The total fiscal year 1984 funding request for communications is $13,535,000.

Maintenance and repair.—Engineering services are provided for the construction, alteration, improvement, and maintenance of Government-owned facilities and for the installation of meteorological and hydrological measuring equipment. Currently, NWS operates 3 national centers, 52 WSFOs, 13 River Forecast Centers, 234 WSOs, and various observatories. The present inventory of field meteorological and hydrological equipment, requiring maintenance and repair services, includes over 12,000 individual systems. NOAA conducts a systematic program by which outdated and de-

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fective equipment is being replaced, at a unit replacement cost under $35,000.

A decrease of five positions and $200,000 is requested in conjunction with proposed consolidation of the NWS Pacific and Alaska Regional Headquarters and with consolidations associated with termination of operation of the NWS Southern Region Headquarters. The total fiscal year funding request for maintenance and repair is $38,052,000, along with 668 permanent positions.

Public warning and forecast preparation.—WSFOs are responsible for warnings and forecasts for States, large portions of States, and assigned zones, preparing severe weather and flash flood warnings and advisories and extended weather outlooks for periods up to 10 days. WSOs prepare county warnings and locally-adapted forecasts, based on WSFO zone forecasts. Thirteen RFCs provide river stage, crest, and flood forecasts for some 3,100 locations as well as extended outlooks for flow volume, ice formation and breakup, and seasonal water supply for river basins. A nationwide system of flash flood watches and warnings based on continuous monitoring of river and weather conditions, using radar and automated data collection networks, serves to alert communities of impending disaster.

NWS provides warnings of severe storms and other marine hazards, such as ice conditions, to ensure the safety of marine operations in the Great Lakes, coastal waters, and designated offshore areas. Four Ocean Service Units (OSUs)—colocated with WSFOs at Seattle; Anchorage; Washington, D.C.; and Slidell, Louisiana—provide warnings and forecasts for designated coastal and offshore areas; while the Great Lakes and the remainder of the coastal areas are served by dispersed weather offices. The Pacific Tsunami Warning Center, at Ewa Beach, Hawaii, and the Alaska Tsunami Warning Center, at Palmer, Alaska, monitor seismic conditions and issue warnings of potential dangers of tsunamis to State, Federal, and international officials.

NWS fire weather services consist of daily forecasts for fire danger rating computations, spot forecasts for wildfires, and on-site mobile unit support for large fires occurring within the national parkland and forest systems. NWS provides detailed forecasts of air temperature, wind speed and direction, humidity, timber moisture, precipitation, and thunderstorm activity to wildfire control agencies and forestry personnel; warnings of conditions leading to unusually high fire dangers are issued as needed.

NWS agricultural weather services include observations, forecasts, warnings, and advisories. As part of its agricultural weather services, NWS issues warnings of low temperatures which are potentially injurious to winter and spring crops, especially in citrus and deciduous fruit-growing areas.

To reduce response time between the detection of hazardous weather and the issue of warnings to the public, NOAA has implemented the AFOS system in day-to-day field operations nationwide, replacing outmoded communications, teletypewriter, and facsimile equipment with modern minicomputer equipment, at about 200 field offices. Those stations that do not have AFOS are being equipped to permit interfacing directly with the AFOS system.

NOAA is requesting a decrease in this program of 181 positions and $5,802,000, which would result from conversion of 8 WFSOs to WSOs, the elimination of the agricultural weather services and fruit frost services, reduction of the scope of fire weather services, centralization of the preparation of aviation area forecasts, curtailment of research and development conducted by the NWS, consolidation of the Pacific and Alaska Region NWS Headquarters, reduction of services at some WSFOs and WSOs, and the elimination of regional hydrologists. These reductions in personnel and services would result in a total fiscal year 1984 request of $55,734,000 and 884 positions for public warning and forecast preparation.

Dissemination.—NOAA uses a wide range of systems to disseminate severe weather and flood warnings, forecasts, and other meteorological, hydrological, and oceanographic data to the public, disaster agencies, news media, industry, and other Government agencies. These dissemination systems include NOAA Weather Radio (NWR), NOAA Weather Wire Service (NWWS), and telephones. NWR includes 372 VHF broadcast stations, which are capable of reaching about 90 percent of the nation's population with continuous broadcasts; and NWWS provides delivery of warnings, forecasts, and other information to the mass media for relay to the public through radio, television, and large-volume telephone recordings.

NOAA proposes a decrease of 26 positions and $1,163,000 in dissemination services, to be realized through conversion of 8 WSFOs to WSOs, consolidation of the coterminous NWS regions and elimination of the NWS Southern Region Headquarters, consolidation of management activities within the Pacific and Alaska Regions, and discontinuing of funding for extension of NWWS circuits without line charges to all new subscribers. With this reduction below the fiscal year 1984 base level, total fiscal year 1984 funding proposed for dissemination is $36,150,000, with 684 positions.

National prediction centers.—The National Meteorological Center (NMC) in Suitland, Md.; the National Hurricane Center (NHC), in Miami; and the National Severe Storms Forecast Center (NSSFC), in Kansas City provide basic forecast guidance used by field forecast offices in issuing warnings and forecasts of severe weather and floods. The NMC collects, processes, and analyzes global weather four times daily as the basis for predicting weather for periods out to 10 days, using numerical models and large-scale computers, NMC also prepares monthly and seasonal forecasts for average weather conditions, performs climate analyses and projections, and provides climate information services used in assessing weather effects on agricultural production. The NMC also refines numerical prediction models used for preparation of guidance products distributed to field offices.

The NHC tracks and predicts the movement and intensity of hurricanes and coordinates the issuing of hurricane warnings with the NMC and Hurricane Warning Offices at Boston, Washington, New Orleans, and San Juan. The NSSFC issues severe thunderstorm and tornado watches, which alert local forecast offices of the potential for severe weather development in local areas. Local offices, in turn, issue warnings, based on actual sightings or radar signatures of tornadoes and severe thunderstorms.

A decrease of 6 positions and $750,000 is proposed by NOAA, in curtailing development of numerical models and analysis/forecast techniques used in weather and climate prediction activities at national prediction centers. With this reduction, the total fiscal year 1984 request for national prediction centers is $28,173,000 and 284 positions.

b. Atmospheric and hydrological research

NOAA's atmospheric and hydrological research subactivity includes research, fundamental technology development, and services, encompassing the lower and upper atmosphere and the solar-terrestrial environment. Objectives of these activities include: to develop ground-based and satellite techniques for remote sensing of environmental parameters; to test and evaluate systems for improving weather information and forecasts; to improve detection and prediction of severe storms; to obtain better understanding of the atmosphere through regional and global experiments and developing of models for improved forecasts; to develop new measurement techniques, national and global networks, and transport models for measuring, monitoring, and predicting air quality; and to provide forecasts and warnings of solar disturbances and their effects on the Earth's atmosphere. For these activities the Administration proposes a fiscal year 1984 funding level of $43,372,000, a reduction of $4,561,000 and 49 permanent positions from the 1984 base levels.

Meteorological research.—NOAA's meteorlogical research is composed of three main components: observational systems research, cloud processes research, and forecasting techniques research. In the first component, NOAA seeks to develop ground-based and satellite techniques for remote measurement of critical meteorlogical and oceanographic parameters required by service and research programs. Success has been achieved in establishing the feasibility of sensing the atmosphere remotely using acoustic, radio, and optical signals. NOAA's Wave Propagation Laboratory is developing vertical profiling systems to obtain profiles of wind velocity, temperature, humidity, and total water content in the atmosphere. Satellite-based techniques are being developed to measure areal distribution of global winds, using Doppler lidar. The Boulder Atmospheric Observatory operates a 300-meter atmospheric research tower to provide demonstration, evaluation, and calibration of remote sensing instruments in support of research and service applications and for conducting research on atmospheric processes.

Cloud processes research includes the study of hurricanes, tornadoes, and severe convective storms and improvement of methods for detecting their locations and predicting future movement and intensities. The Atlantic Oceanographic and Meteorological Laboratory directs development of hurricane models and analyses, based on data sets provided by NOAA aircraft. The National Severe Storms Laboratory conducts research (1) to increase understanding of tornadoes, squall lines, thunderstorms, and other severe local weather; (2) to improve methods for prediction and early detection of these storms; (3) the reduce unnecessary warnings to areas not affected; and (4) to increase public lead time for protecting life and property. Advanced techniques are being developed for improved

probing of the atmosphere by conventional and dual Doppler radars, and for improved processing, displays, and transmission of radar information.

Among other activities, forecasting techniques research includes improved precipitation forecasting, development of the Prototype Regional Observing and Forecasting System (PROFS), and mathematical modelling studies. NOAA also conducts supporting research for computer forecasting of weather elements, hydrological forecast models, and methods for quick detection and prediction of small-scale hazardous weather events.

The North Dakota/Utah/Nevada weather modification program is a Federal-State cooperative effort to evaluate and augment ongoing, State-sponsored projects designed to increase summertime rainfall or winter snow pack. NOAA proposes termination of these weather modification projects in fiscal year 1984, with a saving of $900,000.

A net increase of five positions and $760,000 is proposed in meteological research for fiscal year 1984. This includes an increase of 8 positions and $2,000,000 in severe weather research and a decrease of three positions and $1,240,000 in other programs, including the weather modification noted above. Total requested funding in this research category for fiscal year 1984 is $25,092,000, with a total of 332 positions.

Atmospheric climate research.—NOAA's atmospheric climate research program is intended to achieve a better understanding of the physical processes which control climate and its variation, leading to the ability to forecast interannual climate changes and long-term trends. Major elements of this program are the Global Atmospheric Research Program (GARP), radiatively important constituents, solar-terrestrial phenomena, and climate modelling and diagnostics. The GARP encompasses the World Climate Research Program (WCRP) and the First GARP Global Experiment (FGGE), both international in scope and jointly coordinated by the World Meteorological Organization (WMO) and the International Council of Scientific Unions (ICSU). NOAA is the lead agency for GARP activities within the United States. Within NOAA, the WCRP concentrates on monitoring certain atmospheric climate-related variables in the marine environment, climate-related research in the polar regions, and radiation elements of atmospheric climate research. The latter is centered on the recently-initiated International Satellite Cloud Climatology Program (ISCCP), which uses meteorological satellite imagery data to determine effects of clouds on the Earth's radiation balance. FGGE is intended to define the ultimate limit for deterministic weather and climate forecasting. The experiment has moved from the data collection phase to the research phase, accompanied by further work in organizing and archiving data to expedite research. During fiscal year 1984, GARP data base funds were used to continue a nationally coordinated, comprehensive research program based on FGGE data.

The radiatively important constituent program has three facets: (1) to measure the background concentrations of atmospheric constituents (carbon dioxide, ozone, water vapor, and hydrocarbons), which tend to produce a warming effect on the atmosphere, at four baseline stations in remote parts of the world (South Pole, Hawaii,

Alaska, and Samoa); (2) to measure the concentrations of some of the more important trace constituents (primarily carbon dioxide) at other stations affected my man's activities; and (3) to conduct analysis and interpretation of climatic data from the baseline stations and other stations.

The solar-terrestrial program conducts observations of solar variability in the ultraviolet, optical, and infrared spectra. Knowledge of this variability is essential to understanding of climatic variability and trends. Climate modelling and diagnostics are activities aimed at development of numerical climate models, utilizing the data and analyses produced by other climate research projects. It is anticipated that these models will predict climate variations ultimately.

A decrease of 18 positions and $2,221,000, all under the GARP sub-line, is proposed by NOAA in atmospheric climate research for fiscal year 1984. About half of this decrease will result from reduced research support under FGGE; the other half will be a reduction in support for the WCRP. The total requested funding for atmospheric climatic research in fiscal year 1984 is $8,629,000, with 78 full-time positions.

Air quality research.—NOAA's air quality research program has the following elements: (1) the prediction of geophysical consequences of air quality alterations by man or nature; (2) the assessment of changes in air quality and the development of new measurement techniques; (3) the determination of the sources of natural emissions of gases and particulates into the air; (4) the development of techniques in the laboratory by computer simulation and in the field to permit the modelling of transport and chemistry of atmospheric materials; (5) the use of this modelling capacity to provide guidance for minimizing or ameliorating adverse impacts of atmospheric emissions; (6) the measurement of the concentrations of anthropogenic atmospheric pollutants (fluorocarbons, carbon monoxide, nitrogen oxides); (7) the prediction of trajectories of contaminated air masses in the troposphere and the stratosphere; (8) the determination of the possible effects of atmospheric pollution, including atmospheric chemical cycles; (9) the study of inadvertent alteration of precipitation patterns by air pollutants; and (10) the conduct of transport and diffusion studies for the prediction and control of atmospheric pollution from nuclear energy production.

Development of new measurement techniques and chemical, physical, and dynamic models is intended to enable quantitative predictions to be made of the effect of man-made pollutants, thus, permitting the Environmental Protection Agency and other agencies with pollution control responsibilities to make sound regulatory decisions. Measurements by NOAA's Aeronomy Laboratory have led to important changes in model predictions of the effects of such pollutants. This program complements NOAA's Global Monitoring of Climatic Change Program, which monitors the effects of long-term changes in the atmosphere. Air pollution research studies are conducted using observations from instruments on high-flying balloons and aircraft as well as from satellite remote sensing techniques.

As part of its acid rain research, NOAA is (1) developing equipment to measure dry deposition of acidic materials; (2) making

measurements to understand mechanisms of cloud capture and deposition of acidic materials; and (3) studying natural sources of acidic materials. These measurements are intended to provide a basis for determining the extent of human-induced versus natural sources of acid precipitation; the extent of the acid rain phenomenon; and processes which involve the uptake, transport, and deposition of acidic materials. In fiscal year 1984, NOAA proposes additional research to determine the strength of natural marine sulfur emissions, to measure the flux of acidic materials and their precursors across coastal boundaries, and to measure the geographical extent and variability of the acid rain phenomena.

There are no proposed changes to the NOAA budget for air quality research from the fiscal year 1984 base level of $7,429,000, with 98 permanent positions.

Solar-terrestrial services and research.—The Space Environmental Service Center (SESC) at Boulder, Colorado, jointly operated with the U.S. Air Force Air Weather Service, is the designated national and international focus for operational space and upper-air information. SESC maintains a real-time data base from which Government agencies, industries, universities, foreign governments, and other foreign and domestic users may obtain current information on the state of the sun, the interplanetary medium, and the near-earth space environment. SESC also provides users with forecasts and warnings of sudden solar disturbances and their effects on users' activities. Major users of solar forecasts and warnings are public utilities, transportation systems, energy-related industries, the Department of Defense, the National Aeronautics and Space Administration, other satellites operators, and researchers using satellites.

The core of NOAA's solar-terrestrial service effort is the Space Environmental Laboratory Data Acquisiton and Display System (SELDADS), a system of small computers, dedicated to real-time acquisition, reception, display, and dissemination of solar-terrestrial data. SELDADS provides SESC forecasters with information for preparing forecasts, alerts, and warnings for users. Many users are also connected directly with SELDADS to obtain mission-specific information on a regular basis. Applied research is being conducted at NOAA's Space Environment Laboratory (SEL) to maintain the quality of forecasts, to implement new techniques, and to improve services through numercial modeling and instrument development.

In solar-terrestrial services and research, NOAA proposes a decrease of $3,100,000 and 36 positions in fiscal year 1984. This reduction is in accordance with the Administration's proposal that NOAA phase out its program in this area, since NOAA itself is not a major user of these services. Fiscal year 1984 reductions would terminate: (1) supporting research to maintain the quality of solar forecasts and to implement new forecasting techniques; (2) long-range research to upgrade service through improved monitoring of instrumentation and data storage; (3) publication of Weekly Primary Report and Forecast and Solar-Geophysical Data to 1,700 subscribers; (4) space environment instrument maintenance; and (5) the design and development of new sensors for NOAA and NASA satellites. In addition, the 24-hour per day alerts and warning services will be reduced to 8 hours per day, weekdays only. With pro-

posed reductions, the requested fiscal year 1984 funding for solar-terrestrial services and research would be $2,222,000, with 30 permanent positions.

2. COMMITTEE ACTION

The budget request for Atmospheric Programs is $308,308,000, or $11,486,000 below the fiscal year 1984 base amount. The Committee recommends that $325,945,000, or $17,646,000 above the Administration request, be authorized for this category and that the $17,646,000 be allocated as follows: a $2,000,000 increase for weather modification research; a $3,100,000 increase for the Space Environmental Laboratory in Boulder, Colorado; a $500,000 increase for the study mandated in section 204 of this bill; a $2,221,000 increase for international weather and climate research; a $1,500,000 increase for long-term research and development in the National Weather Service; a $2,226,000 increase to maintain agricultural weather and fire weather services; and $6,099,000 to maintain staffing and services at various National Weather Service facilities.

The Committee rejects the Administration request to terminate NOAA's involvement in weather modification research. In recent yeas, NOAA has emphasized basic research projects in weather modification, rather than testing and evaluation of seeding methodologies or interaction with users. The Committee feels that this emphasis is appropriate in light of both NOAA's expertise in atmospheric science and the need for fundamental understanding in the field. If it is ever to fulfill its early promise, the field of weather modification will need a dramatic success, one built upon a sound physical understanding of the events following cloud-seeding. The likelihood of such understanding has been enhanced by several recent experiments and by the routine experimental use of such technology as short wavelength radar, radiometers, and lidar. The Committee feels that NOAA's recent program in weather modification was on an appropriate course and should be continued.

Of the $2,000,000 authorized for weather modification research, the Committee directs that $380,000 shall be expended to evaluate and analyze data collected in the Florida Area Cumulus Experiments—Phase II (FACE II). FACE II was one of the more promising of the recent cloud-seeding tests, and although FACE II did not achieve its primary objective, the Committee feels that FACE II was a valuable contribution to the field and that analysis and evaluation of data should be completed.

The Committee does not concur with the Administration's proposed reduction of $3.1 million for the Space Environmental Laboratory in Boulder, Colorado, a facility which provides solar-terrestrial services to DOD, NASA, and over 70,000 other users including airlines, utilities, and communications companies. NOAA proposed in April, 1982 to develop a plan outlining how users might support solar-terrestrial services and research through a system of user fees. NOAA has yet to develop this plan, and until it does so, the Committee can not support the proposed abrupt reduction of services and research provided by the laboratory.

The Committee rejects the Administration's proposed reduction of $2,221,000 for international weather and climate research. Much

of this funding is targeted for support of the Global Atmospheric Research Program (GARP), which stands as one of the most effective interagency and international scientific undertakings in recent years. GARP shows early promise of fulfilling every one of its major research objectives. In fact, GARP data have already been used to improve global weather models, particularly the model in use at the European Center for Medium-Range Forecasting. The Committee strongly encourages NOAA to cooperate with the European Center to the fullest extent possible in exchange and quality control of GARP data, so that atmospheric models can continue to be rigorously evaluated and refined.

The Committee also rejects the proposed reduction of $8.3 million in services provided by the National Weather Service, including $2.3 million in agricultural and fire weather services. In its authorization hearings, the Subcommittee on Natural Resources, Agriculture Research and Environment heard compelling testimony from a variety of sources, including the National Advisory Committee on Oceans and Atmosphere, that because of personnel reductions the National Weather Service is now at a point where it may not be able to provide the warnings and protection expected of it in the face of major natural catastrophes. NOAA is presently studying both the future needs of the Weather Services and the extent to which weather services may be privately contracted. The Committee feels that major reductions in Weather Service personnel, as proposed by the Administration, are premature at least until sufficient time has elapsed for a thorough evaluation both of NOAA's internal studies and the study mandated in Section 204 of H.R. 2900.

SECTION 201(a)(3) SATELLITE AND ENVIRONMENTAL DATA AND INFORMATION SERVICES

This budget category is comprised of three subactivities from NOAA's fiscal year 1984 budget submission: Satellite Services; Satellite Systems; and Data and Information Services.

NOAA's Satellite and Environmental Data and Information services activity provides for the operation of polar-orbiting and geostationary weather satellites and of a Landsat system and provides global environmental data and information services to users in commerce, industry, agriculture, science and engineering, the general public and agencies at all levels of government. Proposed fiscal year funding increases would provide equipment for operating the atmospheric sounder aboard the geostationary satellite and also permit modifications to polar-orbitting satellites for greater utility in a near-noon orbit. The proposed decrease would eliminate one polar-orbitting spacecraft and also reduce environmental satellite product and services support. A further reduction would follow from consolidation of seven satellite field stations with weather service forecast offices with which they are co-located. The total request for fiscal year 1984 for this activity is $212,953,000, a net decrease of $21,771,000 from the fiscal year 1984 base level of

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$234,724,000.[1] With this decrease there is a net decrease of 78 permanent positions, with a proposed level of 1,072 positions.

1. PROGRAM DESCRIPTION

a. Satellite services

NOAA operates a national environmental satellite system, using two types of spacecraft. Those in polar orbit provide day and night observations of the Earth and its atmosphere and obtain quantitative data needed for numerical analysis and weather prediction. Spacecraft in geosynchronous orbit provide near-continuous observations of North and South America and the surrounding oceans and are useful in the early detection and monitoring of potential natural disasters and severe local storms. Requested funding for fiscal year 1984 is $73,279,000, with 543 positions.

Environmental satellite services.—Under this program, NOAA operates and maintains satellites ground facilities, ingests and preprocesses incoming satellite data, provides satellite-derived products to users, and conducts research to improve the use of satellite data. Principal products derived from polar-orbiting satellite data are (1) vertical temperature and moisture soundings, (2) sea surface temperature data, (3) and global cloud cover-images and mosaics. The principal products derived from geostationary satellites are: (1) full-disc and sectorized cloud-cover images, (2) observations of wind speed and direction, (3) assessments of hurricane motion and intensity, (4) severe thunderstorm and tornado detection and monitoring, and (5) warnings of potential flash flooding. Snow cover and sea and lake ice maps, as well as products to support agriculture are produced from data from both satellite systems. Interpretive support is provided to product users in many areas, such as aviation, fishery operations, fruit frost predictions, forest fire detection, coastal tanker operations, game bird management, volcanic activity monitoring, locust detection, search and rescue, and offshore drilling. Application products are delivered through a variety of formats. Techniques are also being developed for using satellite data in new applications. Universities and industrial groups participate in developmental activities through contracts and grants for satellite-related research, and close coordination is maintained with related research and development programs of NASA and the Department of Defense.

A net increase of $2,625,000 in funding and a decrease of 56 positions is proposed for environmental satellite services. This funding change results from a proposed increase of $5,500,000 for improvement of data collected for NOAA's forecasting and warning services, through use of the VISSR Atmospheric Sounder on GOES satellites, and proposed decreases through consolidation of the seven Satellite Field Services with NWS forecast offices and replacement of photo-processing services with electronic data transmission. All of the personnel decreases are associated with the two latter funding decreases.

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[1] The Committee calculation of base funding for satellite programs differs from the Administration's estimate. The Committee included within its base funding estimate $9,837,000 for NOAA to assume operational control of LANDSAT from NASA and $26,131,000 to maintain the current operational level of geosynchronous and polar-orbiting weather satellite systems.

Landsat operations.—NOAA operates and maintains Landsat system ground facilities to meet needs of Federal, State, and local government users and those of the private sector. Information produced from spacecraft sensor data have applications in agricultural crop assessment, population growth monitoring, geological analyses, pollution appraisal, and other activities. During 1983, NOAA assumed responsibility for operation of the NASA-developed Landsat-D system. NOAA will accept requests for data, schedule the spacecraft, acquire and pre-process data at the Goddard Space Flight Center ground processing facility, and provide for final data processing and product delivery through the Department of the Interior's EROS Data Center Facility. At the request of participating foreign ground stations, NOAA will schedule data broadcasts directly to those stations. NOAA will continue working toward the goal of private sector ownership and operation of the land remote sensing system.

A request of $4,037,000 would support enhanced Thematic Mapper (TM) data processing, providing the capability to produce 50 scenes per day to meet expected demand for high resolution TM data. Prices of Landsat products are being set at a level that will permit recovery of all operational costs from users, including Federal agencies and other domestic and foreign users. Total operating funding requested for fiscal year 1984 is $23,536,000, with 21 permanent positions.

b. Satellite systems

The goals of this subactivity are to maintain a system of polar-orbiting satellites that obtain global environmental data, to maintain a system of geostationary satellites that provide near-continuous observations of the Earth's Western Hemisphere, and to provide for an operational Landsat system that provides timely land resource observations from space. Total requested funding in fiscal year 1984 for this subactivity is $117,361,000. Procurement of satellites is a cooperative venture between NOAA and NASA. NOAA, as the operating agency, represents the user and defines basic requirements. NASA, with its engineering expertise, develops detailed specifications and procures and launches the spacecraft with reimbursable funds from NOAA.

Polar spacecraft and launching.—This program involves launch and procurement of the polar-orbiting operational environmental satellites. Actual launches are scheduled after careful analysis of in-orbit capabilities and life expectancy estimates. The polar-orbiting satellite is a three-axis stabilized satellite which carries these instruments:

TOVS—Tiros Operational Vertical Sounder, providing atmospheric temperature and water vapor profiles,

AVHRR—Advanced Very High Resolution Radiometer, providing medium resolution cloud images, which are broadcast continuously through the Automatic Picture Transmission (APT) system; it also provides high resolution data with direct readout through the High Resolution Picture Transmission (HRPT) system,

DCPLS—Data Collection and Platform Location System,

SEM—Space environment Monitor, providing measurements of solar activity,

SBUV—Solar Backscatter Ultraviolet Ozone Monitoring instrument, and

SAR—Search and Rescue instruments.

As part of the fical year 1984 budget, NOAA proposes a reprogramming that would reduce amounts available for polar spacecraft and launching in 1983 by $38,000,000, consisting of $18,000,000 of the funds appropriated in 1983 and $20,000,000 of the funds appropriated as a fiscal year 1982 supplemental.

In fiscal year 1984, NOAA proposes a savings of $20,035,000 by conversion to a one-polar satellite system when NOAA E, launched into orbit in early calendar year 1983, is no longer operational sometime during 1985. An increase of $1,000,000 is proposed for modification of the polar-orbiting satellites to allow them to function in an orbit whose equatorial crossing time is near noon. Additional funding of $3,000,000 will be required in fiscal year 1985 to complete the spacecraft modifications. It is claimed by NOAA that this improvement in timeliness of polar sounding data from spacecraft modifications will offset loss of data from conversion to a one polar-orbiting satellite system in 1985. Total funds requested for polar spacecraft and launching for fiscal year 1984 are $36,418,000.

Polar ground systems.—This line item involves procurement of ground-based equipment necessary to command and control the spacecraft and to process data for the users. The polar-orbiting ground system is divided functionally into two major subsystems: (1) Data Acquisition and Control Subsystem (DACS), which monitors the condition of the spacecraft, receives data from the satellite sensors, and takes corrective actions when necessary, and (2) the Data Processing and Services Subsystem (DPSS), which produces data and analyses needed to serve users of operational satellite products.

Total funding requested for fiscal year 1984 is $2,915,000 for polar ground systems.

Geostationary spacecraft and launching.—This line item procurement and launch of the geostationary operational environmental satellites (GOES). The system includes two satellites, located over the equator at 75° and 135° West longitude. One standby spacecraft is positioned at 107° West longitude to transmit satellite and standard meteorological products through the Weather Facsimile (WEFAX) system. The GOES satellites are spin-stabilized satellites, which carry the following instruments:

VAS—Visible and Infrared Spin Scan Radiometer (VISSR) Atmosphere Sounder, the principal GOES sensor, providing 8-km resolution infrared and 1-km resolution visible images of the full Earth disc and measurements of atmospheric temperature and moisture;

SEM—Space Environmental Monitor, providing measurements of solar radiation data; and

DCS—Data Collection System, used to collect and relay environmental data measured by a variety of remotely located observing platforms.

The requested funding for this line item in fiscal year 1984 is $67,757,000.

Geostationary ground systems.—This line item involves procurement of necessary ground equipment unique to GOES, consisting of: (1) sectorizers, located in the Central Data Distribution Facility (CDDF); (2) DCS computers, also located in the CDDF, for processing and storage of incoming data from remote observing stations; (3) computers for ingesting data scheduled for processing in NOAA computers; (4) electronic processing equipment to produce image animations; (5) interactive processing equipment to derive wind speed and direction; (6) antennas for receiving "stretched" data from the Wallops CDA station; (7) associated microwave and telephone links for transmitting data to the CDDF and out to some users; (8) receiving, transmitting, and associated equipment at the Wallops CDA station; and (9) spacecraft command, monitoring, and control equipment at Suitland, Maryland.

The total requested funding for fiscal year 1984 for GOES ground systems is $4,471,000.

Landsat systems.—The Landsat base program includes the NASA-supplied and launched Landsat D′, which was launched July 16, 1982, and Landsat D′, which is scheduled for launch either on failure in orbit of Landsat D or in approximately the fourth quarter of calendar year 1985. The Landsat satellite carries two primary instruments:

MSS—Multi-spectral Scanner, providing data in four bands of the visible and near infrared portions of the spectrum, with an instantaneous field of view of 80 meters; and

TM—Thematic Mapper, providing data in seven spectral bands, including three in the infrared, and having an instantaneous field of view of 30 meters for all but the thermal infrared bands.

NOAA proposes $5,800,000 in fiscal year 1984 to fund the storage and testing of the Landsat D-prime spacecraft until the fourth quarter of calendar year 1985. These funds will be required to reimburse NASA for storage, testing, expendable components, and technical management. In fiscal year 1985, additional funding will be required for completion of the storage and testing under the current plan.

c. Data and information services

NOAA provides worldwide environmental data and information products and services in the atmospheric, marine, solid earth, and solar-terrestrial sciences. Users include Federal, State, and local government agencies; industry, agriculture, academia, and the general public. These products and services are used in decisions critical to the national economy, national defense, productivity of American industry, energy development and distribution, world food supplies, public health and safety, and development of natural resources. Data are obtained from all available sources, national and international, and are processed for rapid access by users. In fiscal year 1984, NOAA proposes decreases of $3,326,000 and 122 positions from the fiscal year 1984 base level, with a total request of $22,313,000 and 529 permanent positions for environmental data and information services.

Climatic data services.—The National Climatic Data Center (NCC), at Asheville, North Carolina, with a Satellite Data Services

Division (SDSD) at Camp Springs, Maryland, receives annually and processes and archives over 30 million meteological observations. The SDSD archives approximately 100,000 digital data tapes and 10,000,000 photo images and adds about 300,000 tapes and 250,000 images per year. In addition, the equivalent of 700,000 tapes are stored for SDSD by the University of Wisconsin. Included in the data are 5,000,000 atmospheric soundings and 12,000,000 sea surface temperature observations. Data are gathered from the National Weather Service, NOAA's satellites, the military services, the Global Telecommunications System, and other national and international sources to provide a National Climatic Base in digital, analog, microfilm, photo imagery, and manuscript forms. There are more than 107,000 subscriptions to regularly published NCC data, and over 70,000 user requests were answered in 1982. General publications serve user needs, while other data publications are designed to meet specific needs. NCC also performs climatic applications studies for other Government agencies, including the Air Force and the Navy.

In fiscal year 1984, NOAA proposes a decrease of one position and $478,000 in climatic data services, as a result of terminating the fiscal year 1982 Climate Data Base initiative. With this decrease, the total requested funding for fiscal year 1984 is $10,305,000, with 296 permanent positions.

Ocean data services.—The National Oceanographic Data Center (NODC) in Washington, D.C., the world's largest repository of oceanographic data, provides data, on an exchange or reimbursable cost basis, to government agencies at all levels, academic and private research institutions, industry, foreign governments, and the general public. Data held at NODC includes bathythermograph records, sea surface to near-bottom records of temperature, salinity, and nutrient chemistry, and surface and sub-surface current measurements. Data are also collected from automated ocean data buoys and from special projects and surveys. NODC products include manuals for reporting ocean data, atlases, and Computer Programs in Marine Science. Special data summaries are prepared on request. NODC cooperates with and processes data deposited in World Data Center A (Oceanography), which is colocated with the Center. NODC also participates as data manager in major marine programs established by the National Ocean Pollution Planning Act (P.L. 95-273).

In fiscal year 1984, there are no changes proposed by NOAA from the fiscal year 1984 base level for ocean data services, which is $5,471,000, with 108 permanent positions.

Geophysical data services.—The National Geophysical Data Center (NGDC) in Boulder, Colorado, provides data and services on the physical properties of the Earth, on its snow and ice environment, and on solar-terrestrial physics. Disciplines covered include seismology, geomagnetism, gravity, marine geology and geophysics, the ionosphere, solar-terrestrial physics, glaciology, and paleoclimatology. Users in 1982 included more than 6,000 industrial organizations, scientists, engineers, surveyors, lawyers, and members of the public. Organizations served include 50 departmental and independent Federal agencies, about 100 universities and non-profit research establishments, industries, and several hundred foreign or-

ganizations, many of which provide data for World Data Centers A for Solar-terrestrial Physics, Solid Earth Geophysics, Marine Geology and Geophysics, and Glaciology, which are operated by NGDC. Selected data are exchanged with World Data Center B in Moscow and with World Data Centers C in Europe and Japan, under auspices of the International Council of Scientific Unions.

The Center prepares a number of standard summaries and listings, such as consolidated lists of solar flare observations, compiled from worldwide observatories, and the annual history of earthquake occurrences in the United States. Special summaries and reports, such as maps of active volcanoes and tables of magnetic data, are prepared to meet specific user needs.

NOAA does not propose any changes from the fiscal year 1984 base level for geophysical data services, which is $2,606,000, with 43 permanent positions.

Assessment and information services.—These activities provide quantitative environmental impact assessments, data interpretations and analyses, and library and information retrieval services to meet national and international user needs. Current and historical environmental data are used to aid managers of critical national resources by assessing impacts of climate variations on food, water availability, transportation, and energy resources and by assessing impacts of offshore energy development on marine resources. Impact assessment is accomplished by development and application of statistical and other numerical models, preparation of model inputs from multidiscipline data bases, and tracking and verifying climatic anomalies on a global basis. Published results of NOAA's research and technical services programs are distributed to scientists, engineers, and other users; to depository libraries; universities; and other organizations engaged in scientific studies. Over 49,000 requests per year for assessments and technical information are answered. This activity also acquires, indexes, archives, and disseminates scientific and technical publications, reports, and abstracts from domestic and international sources on oceanic, atmospheric, earth, and space sciences.

A decrease of 21 positions and $2,848,000 is proposed in assessment and information services for fiscal year 1984. This decrease would result from reduction or termination of less critical environmental documentation and information programs ($1,046,000) and from a decrease in direct funds used to support core library services ($1,802,000). The total request for fiscal year 1984 for these services is $3,931,000, with 82 permanent positions.

2. COMMITTEE ACTION

The budget request for Satellite Programs and Data and Information Services is $212,953,000. The Committee recommends that $241,953,000, or $29,000,000 above the Administration request, be authorized for this category and that the $29,000,000 be allocated as follows: a $20,000,000 increase to maintain two polar-orbiting weather satellites; a $4,000,000 increase to plan for continuity of land remote-sensing data; a $4,000,000 increase for Satellite Field Service Stations and various publication and library services; and a

$1,000,000 increase for enhancement of the climatic data base at the National Climatic Center.

The Committee feels strongly that the two polar-orbiting satellite system should be retained. Oversight hearings by the Subcommittee on Natural Resources, Agriculture Research, and Environment indicated that there are two serious risks associated with the Administration's proposal to downgrade the system to a one-satellite system.

First, the level of forecasts and services would decline. Long-range forecasts will suffer, as will short-range forecast in tropical areas, in the southern hemisphere, and in oceanic areas such as Hawaii and Alaska. Other cooperative programs will suffer, including AGRISTARS (which provides crop production forecasts), the World Climate Program, and a proposed search-and-rescue mission. And perhaps most significantly, the Committee felt that the proposed reduction in satellites would adversely affect our relations with nations of the third world. Currently over 120 nations receive weather satellite data from the United States. According to NOAA, downgrading the two-polar system would not allow these nations to do a respectable job under third-world weather conditions. Further, many of these nations use satellite information to monitor crop production and to aid in planning for agriculture, fishing, and water management.

The second risk associated with going to a one-polar system is its lack of back-up capacity. Thus, in the event of a launch failure or an operational failure, there will be no satellites in orbit for a period of one to eighteen months. With no polar orbiting satellites, the art of weather forecasting would be plunged back to the 1940s, and the resultant deterioration in forecasting would lead to losses in many sectors of our economy—from agriculture, to water management, fisheries, construction, forestry, and energy distribution.

In balance, the two-satellite system provides better forecasts, insurance against satellite failure, and an inexpensive source of foreign aid; it is a cost-effective investment.

The increase recommended by the Committee for the National Climatic Center would fund the first year of a multi-year effort to restructure, inventory, edit, and validate the total climatic data base at the Center. It is expected that this project will augment station records which are currently incomplete, in addition to making the data base considerably more accessible. The effort to upgrade the quality and accessibility of climatic data is a high-priority project identified in the National Climate Program's first 5-year plan and is in direct conformity with past recommendations of the Committee to enhance the usage of data which is already available.

The $4,000,000 increase recommended by the Committee to plan for continuity of land remote-sensing data is detailed later in this report in the explanation of Section 203 of H.R. 2900.

SECTION 201(a)(4) NATIONAL CLIMATE PROGRAM OFFICE

1. PROGRAM DESCRIPTION

Public Law 95-367 established a National Climate Program consisting of three major elements: (1) coordination of ongoing Federal activities related to climate, with specific attention to program planning, management, and budget; (2) identification and funding of essential climate research programs; and (3) effective dissemination to and application by the user community of existing and forthcoming climate-related information.

To accomplish these objectives, the Secretary of Commerce established in NOAA a National Climate Program Office (NCPO) responsible for implementing the provisions of the Climate Act. Included among these responsibilities was preparation of long-term (five-year) plans outlining goals and priorities of the program. The plan includes an identification of the roles of various Federal agencies in the program to achieve the goals enumerated in the plan, and a summary of program accomplishments as an aid in assuring that such goals were met. In essence, the office envisioned in the Climate Act was to serve as the focal point for Federal climate-related activities in order to effect a coherent, comprehensive, national program of climate research, applications, and services.

The first Five-year Plan, transmitted to the Congress on November 13, 1980, identifies three major categories of activities: (1) providing climatic products; (2) responding to impacts and policy implications of climate; and (3) understanding climate. The plan also describes six high-priority "Principal Thrusts" and thirteen lower-priority "Areas of Program Concern." Options for future program development are suggested that are not in present agency plans.

Improving climate forecasts is a high priority of the National Climate Program. The objective is to apply the results of academic and Federal research to forecasting operations of the National Weather Service. The first Experimental Climate Forecast Center, established at the Scripps Institution of Oceanography in 1981, has developed new methods of forecasting seasonal temperature and precipitation, one of which is being studied by the Weather Service for possible application. The problem of matching resources to tasks requires creative ways of funding to support continued work, and it seems appropriate to encourage the private sector to participate in testing of forecast methods. The National Climate Program Office is working with the University Corporation for Atmospheric Research to try to form an industrial consortium to help provide financial support for new experimental centers.

The five-year plan describes a phased effort to improve climate services, beginning with Federal-State cooperative projects to demonstrate the value of climate services in various institutional formats. The National Climate Program Office has supported projects in several States and has successfully stimulated interest in several more States to expand and improve existing climate services. The Office has begun developing a nationwide system of climate services involving both the public and private sectors. The experience of regional climate centers, which would be established initially

with NCPO support, are being examined as one option for organizing such a nationwide climate services system.

The National Climate Program Office coordinates interagency participation in such international climate-related activities as the World Climate Program. The NCPO supports a project with the Oklahoma Climatological Survey to demonstrate the use of climate data with microcomputers for possible application in less developed countries. The Office is also organizing the research community to develop and coordinate a research plan for U.S. participation in the International Satellite Cloud Climatology Project, which is scheduled to begin in July 1983 and continue until 1988.

For fiscal year 1984, the Administration requests an authorization of $1,189,000 for operations of the National Climate Program Office. This is an increase of $80,000 over the fiscal year 1984 base of $1,109,000. This increase will support diagnostic and model studies of the feasible limits of seasonal climate forecasting as part of the NCPO program to assess the theoretical basis for climate production and develop reliable and objective prediction techniques.

2. COMMITTEE RECOMMENDATIONS

The budget request for the National Climate Program Office is $1,189,000, or $80,000 more than the fiscal year 1984 base level. The Administration requests this funding under the "Atmospheric and Hydrological Research" subactivity. The Committee recommends that $2,000,000, or $811,000 above the Administration request, be authorized for this program, and that these additional funds be used to enhance the Intergovernment Climate Program and the Experimental Climate Forecast centers.

Additional Committee views on the National Climate Program and the National Climate Program Office are provided elsewhere in this report in the discussion of Title III of H.R. 2900.

SECTION 201(b)

Section 201(b) provides for the transfer of funds between categories in accordance with specific guidelines laid out within the section. The Committee agreed that it would be appropriate to allow NOAA some flexibility in reprogramming authorized funds from one category to another. The Committee has therefore authorized the transfer of amounts up to ten percent of the funding authorized for a given category into or out of that category at the discretion of the Administrator. While recognizing the need for a certain amount of flexibility in making small changes without seeking approval by the Congress, the Committee believes that oversight by the Committees would be greatly enhanced if the agency were required to notify the Congress and obtain approval before shifting larger sums between categories. Thus, this section provides that, if more than ten percent of the funds authorized for a particular category are to be transferred into or out of that category, approval must be sought from the appropriate Committees of the House and Senate.

SECTION 202

Section 202(a) provides that the Administrator of NOAA keep the Committee fully informed about NOAA's atmospheric, climatic, and ocean pollution activities.

Section 202(b) specifically addresses the Committee's need for timely budget information so that the Committee can make informed decisions before the deadlines set by the Budget Act. The Committee must have a complete description of NOAA's atmospheric, climatic, and ocean pollution activities and the financial resources required to carry out these activities. The Committee does not intend to request duplicate reports from NOAA, and recognizes that other reports being prepared by NOAA may satisfy some of the Committee's needs if made available in a timely fashion.

SECTION 203

Section 203(a) requests the Administrator to prepare a report on the importance of meteorological satellites to weather forecasting, to be submitted to the Congress at the same time as the fiscal year 1985 budget request.

The costs for meteorological satellites has been escalating at a very rapid rate in recent years. In fiscal year 1983, approximately $176 million was required to operate the same program which cost $93 milion in fiscal year 1981. Thus, it was not surprising that a cost-conscious Administration would propose elimination of one of the two polar-orbiting weather satelites in fiscal year 1984 as a means of saving significant revenues throughout the 1980s.

The Committee feels, however, that the proposal to eliminate a polar-orbiting satellite was very poorly justified. The proposal was not supported by studies on the impact of a second satellite on the accuracy of weather forecasts, despite the fact that such studies have been attempted in recent years by NASA. Neither did the proposal include an assessment of the probability of launch failure, or of the international implications of eliminating one polar-orbiter.

The Committee believes that the Congress will disagree with the Administration's proposal to eliminate one of the polar-orbiting satellites in fiscal year 1984, and that the Administration will again propose this savings in fiscal year 1985. Therefore, the Committee directs NOAA to prepare a quantitative study assessing the importance of satellites to weather forecasting. The study should include an analysis of the quality of forecasts generated in representative areas of the globe when data from zero, one, and two polar-orbiting satellites are used. These comparisons might be drawn from historical forecasts when one versus two satellites were in orbit, or might be generated by omitting the data from one satellite at a time when two are operating. The Committee suggests that NOAA utilize the expertise of the National Academy of Sciences as may be necessary in designing and reviewing this study.

The study shall also include the other elements listed in Section 203(a) of the bill.

The Committee feels that the decision to transfer either land remote-sensing, meteorological, or future ocean remote-sensing satellites to the private sector will be one of the most important policy

decisions affecting NOAA in the next few years. The Committee intends to play an active role in this decision-making process. Therefore, section 203(b) puts limitations on the authority of the Secretary of Commerce to transfer the ownership or operation of any civil remote-sensing satellites—land, weather, or ocean—to the private sector. The Secretary may not make such a transfer unless (1) he submits a comprehensive statement of recommended policies, procedures, conditions, and limitations to which any trasfer should be subject; and (2) the Congress thereafter enacts into law such policies, procedures, conditions, or limitations as it deems appropriate for such transfer.

Section 203(c) authorizes $4,000,000 to be made available to NOAA to allow definition of options for continuity of remote-sensing data in the event that Congress fails to approve transfer of whole or part of the LANDSAT system, and if no private sector system will provide continuity of this type of data within a reasonable period of time after the expected demise of Landsat D'. This action should not be taken to imply competition with the private sector in the area of remote sensing, but should only mean that the federal government is seeking insurance against interruption of data continuity in the event that no alternatives are available within a reasonable time.

SECTION 204

Several trends in the operation of the National Weather Service have emerged in recent years:

(1) introduction of high technology and automation in data-collection and in transmission of data and forecasts;

(2) decreasing personnel levels;

(3) consolidation of Weather Service Offices (WSOs); and

(4) increased emphasis on short-term, mesoscale weather forecasting.

The Committee feels that these trends will continue and will make careful, long-term planning by the National Weather Service essential if it expects to improve weather services in the coming decade. Although the Weather Service clearly recognizes the importance of these trends, the Committee believes that the Service has not clearly articulated a long-term plan for organization which incorporates necessary technological advances.

The Committee believes that an effective, technologically advanced weather service is required to protect the public and serve the national economy. Reports on the needs of the National Weather Service and associated activities of other agencies have been, or are being prepared by many public and private organizations concerned with the future of the Service. The recommendations of these reports require evaluation as part of a more comprehensive assessment of possible approaches to development and operation of the National Weather Service and associated activities of other agencies.

Accordingly, Section 204 requests that the Secretary of Commerce, through NOAA, enter into an agreement with the National Research Council of the Academies of Science and Engineering to conduct a study of the National Weather Service and related activi-

ties. The elements of the study are detailed in the legislation. The Committee suggests that the Council convene an appropriate group of both scientists and users of weather information to:

(1) review existing studies of the National Weather Service for consistency; and

(2) determine opportunities, options, and priorities for weather operations and research in order to improve: weather warning and forecast capability, particularly in the mesoscale; research to undergird operational improvements; and the field structure to operate new technology and to disseminate information most effectively.

The Committee strongly encourages the study group to propose a plan, or series of options, for incorporations of these new technologies by the National Weather Service and (as indicated by element E of the study) to develop information on priorities and costs of recommended changes and improvements in weather services.

TITLE III—NATIONAL CLIMATE PROGRAM

(Additional information on the National Climate Program Office is contained in the description for Section 201(a)(4) of the bill.)

Title III of H.R. 2700—the "National Climate Program Amendments of 1983", was developed as a result of oversight hearings held by the Committee during the 97th Congress. During hearings held on the fiscal year 1982 reauthorization of the National Climate Program by the Subcommittee on Natural Resources, Agriculture Research, and Environment on March 6, 1981, several concerns were raised about the existing Climate Program. All of the non-agency witnesses agreed that neither the Intergovernmental Climate Program nor the Experimental Climate Forecast Centers had met the goals specified for them in the organic legislation. In addition, the National Climate Program Office was criticized for its failures to affect OMB's budget process significantly, to provide funding for "gap" activities, and to coordinate long-range planning for government climate activities—in short, to function as a true national climate office.

The Committee asked witnesses at the hearing to set up and ad hoc group to prepare recommendations for the Committee on ways to increase the effectiveness of the program. The group included the Chairman of the Climate Board of the National Academy of Sciences, the Chairman of National Climate Program Advisory Committee, the President of American Association of State Climatologists, and the acting director of the National Climate Program Office. At a series of meetings throughout the summer of 1981, the group met with representatives of participating government agencies, members of the Advisory Committee, members of the Climate Board, and others to discuss issues and develop suggestions for legislative changes. Most of these suggestions were incorporated into H.R. 1545, which was itself incorporated into H.R. 2900 as Title III.

The Committee feels that the most important provision of Title III is the statutory establishment of the Climate Program Policy Board. All agencies participating in the Program should be represented on the Board at a policy level sufficiently high to make presumptively binding budget commitments. The Board functions as a

"board of directors" for the Program and is responsible for long-range planning and presentation of budgetary recommendations to OMB. Chairmanship of the Board rotates every two years in order to foster inter-agency participation.

The National Climate Program Office shall remain within NOAA, separate from the NOAA Climate Office, and shall function as staff to the Policy Board. The Program Office should be responsible for adminstering the National Climate Program, for staffing the Climate Program Policy Board, for providing budgetary analyses for the Policy Board, for coordinating interagency participation in international activities, and for administering the Intergovernmental and Experimental Forecast Center Program. The committee expects that NCPO will be recognized as the principal climate office in the Federal Government, and that its Director be both a recognized leader in the climate community and the primary spokesperson to outside groups and other governments about the elements of the National Climate Program.

The Committee believes that these provisions will enhance budgetary coordination. Agencies participating in the Program will submit proposed budgets to the National Climate Program Office simultaneous to their submission to OMB. The NCPO shall analyze the budgets for the Board, who shall then review the budgets and the analysis and seek a consensus about the consistency of the budgets with the goals of the National Climate Program. If such a consensus is not possible, minority reports can be submitted.

There are a number of important areas established in the National Climate Program which have been termed "principal thrusts" and "areas of program concern". These areas should be monitored and guided by interagency working groups headed by the agency with lead responsibility for the activity. Again the National Climate Program Office would provide staff support to such committees and working groups, and these groups would report periodically to the parent Board.

In addition to setting out the roles of the Policy Board and the Climate Program Office, Title III contains a number of other provisions. The goals of the Intergovernmental and Experimental Forecast Center Programs are retained. However, the matching funds provisions of the Intergovernmental Program are removed to provide flexibility in securing necessary activities. The Secretary of Commerce is authorized and encouraged to enter into cooperative agreements, to loan equipment, to purchase services, and to enter into research demonstration contracts or grants to assist in attaining the Program's objectives.

The National Office is provided with specific authority to fund climate activities in areas not being adequately addressed by any Federal agency. This "gap-funding" is an important and successful element of the National Ocean Pollution Planning Act and could be an equally effective coordinating mechanism for the National Climate Program.

The committee examined the issue of whether the National Climate Program Advisory Committee should be retained, in light of the Statutory creation of the Climate Program Policy Board and in light of the Administration's view that the advisory function could be served by the Climate Board of the National Academy of Sci-

ences. However, the Climate Board is largely composed of climate researchers, while the National Climate Program Advisory Committee, as indicated in the Conference Report (No. 95–1489) accompanying the organic legislation, is to be composed largely of users of climate data, information, and services such as farmers.

In an effort to maintain contact between the Federal Government and climatic users and to consolidate these three groups (the Policy Board, the Advisory Committee, and the Climate Board), the Committee has directed the Policy Board to "consult with and seek the advice of users and producers of climate data". By freeing the Secretary of Commerce from the requirement to maintain an Advisory Committee, the Committee is in no way suggesting that contacts between the Policy Board, the National Office, and climatic users should decrease.

Title III also specifies that of the funds authorized for the National Climate Program Office pursuant to section 201(a)(4) of the Act, specified percentages shall be made available to both the Intergovernmental Program and the Experimental Climate Forecast Centers. This provision highlights the importance that the Committee attaches to these programs and ensures that additional funding will be available to these vital programs, should the appropriation for the National Climate Program Office be increased above the Administration request.

TITLE IV—OCEAN POLLUTION RESEARCH

BACKGROUND

The Marine Protection, Research, and Sanctuaries Act of 1972 became effective on April 23, 1973. Since that time all ocean dumping of waste materials has been regulated, either by EPA or, in the case of dredged spoils, by the U.S. Army Corps of Engineers. Congress recognized that wise use of the oceans depended upon a firm scientific understanding of the impacts of coastal pollution and charged NOAA, in Title II of the Ocean Dumping Act, with the responsibility for determining the effects of past and current introduction human-generated wastes on marine ecosystems.

The 1970s was a decade which saw further restrictions on the dumping of wastes—particularly municipal and industrial wastes—into the ocean.

In the 1980s, the pendulum is beginning to swing back toward increasing use of the oceans for waste disposal. The National Advisory Committee on Oceans and Atmosphere (NACOA) recommended in 1981 that the oceans might be used for disposal of sewage sludge and certain types of industrial wastes. In April of 1981, a Federal district court in Manhattan struck down the 1981 deadline for disposal of sewage sludge at a site 12 miles offshore from New York City.

Many marine scientists argue that the oceans possess an inherent "assimilative capacity" for safely absorbing wastes. Few would argue that an assimilative capacity does not exist. The key, however, is determining where, when, and in what quantities wastes may be safely released into the oceans. Those who dispute the assimilative capacity model do not object to it in principle; rather they

would argue that present data and models are inadequate to utilize the assimilative capacity model in managing the oceans.

At a time when the need for good ocean pollution data is clearly increasing, the Administration is proposing large FY 1984 cuts in the ocean pollution research budgets of both NOAA and EPA. NOAA, for example, would terminate $6.8 million in "Regional Projects and Ocean Dumping Research," which includes work in the New York Bight, in Puget Sound, in the Northeast Monitoring Program, and in the Ocean Dumping Program. Further cuts of $35.0 million in the Sea Grant Program would also include a significant number of ocean pollution projects. EPA cuts in water quality research, which includes marine research, are projected to be 37% in FY 1984. In addition, both EPA and NOAA are proposing to eliminate Great Lakes research laboratories in fiscal year 1984.

Wise management of the oceans in the 1980s and beyond will depend upon an understanding of the potential impacts of man's activities upon living and non-living marine resources. Such understanding will be critical in several specific areas:

Oil development.—The Administration is proposing an expanded program for offshore oil and gas leasing and development. Impacts on marine fisheries may occur in such sensitive areas as George's Bank. Increased oil development may impact the oceans by increasing the likelihood of spills or blowouts, by increasing low-level persistent oil pollution, or by increasing exposure of aquatic organisms to potentially toxic drilling muds.

Coal exports.—Increasing the Nation's capacity for coal exports will require port development and a tremendous amount of harbor dredging. Particularly in polluted onshore areas near cities in the Eastern U.S., large dredging projects have the potential to introduce heavy metals and synthetic organic chemicals such as PCBs into the marine food chain. The possibility of resuspension of PCBs threatened to close down New York Harbor in 1980. Our understanding of the impact of large dredging projects on marine ecosystems is still rudimentary.

Sewage sludge disposal.—In April, 1981, a Federal judge overturned the December 31, 1981 ban on sewage sludge disposal in the New York Bight. As a result of this ruling and EPA's new sludge policy, several Eastern jurisdictions, including Philadelphia, are reconsidering their sludge disposal options. These recent events raise the definite possibility that disposal of sewage sludge will increase dramatically during the 1980s.

Disposal of industrial and nuclear wastes.—NACOA has recommended, and EPA is reconsidering, allowing disposal of certain types of industrial wastes in the oceans. At the present time, only two companies dispose of industrial wastes in the ocean. In the nuclear area, the Dept. of Energy has an ongoing program to investigate placement of high-level waste below the sediments in the deep Pacific Ocean. In addition, the navy is investigating decommissioning of nuclear submarines by scuttling them in the deep ocean.

Cross-media assessments.—EPA is revising its regulations to permit ocean dumping of any material not specifically prohibited by statute, when ocean disposal is the most environmentally acceptable and economically feasible means of disposal. Of course, judging which disposal option—incineration, landfill, or ocean dumping—is most "acceptable and feasible" depends upon an analysis of the environmental effects of disposal in the various media. Testimony at hearings held by the Subcommittee on Natural Resources, Agriculture Research, and Environment indicated that the ability to perform such "cross-media assessments" is currently quite limited. Thus, the implementation of EPA policy would seem to be limited by the state of the science.

Explanation of Title IV and Committee Views

Section 202 of the Ocean Dumping Act directs NOAA to "initiate a comprehensive and continuing program of research with respect to the possible long-range effects of pollution, overfishing, and man-induced changes of ocean ecosystems". The Committee commends NOAA on the research program which it has developed in response to its Congressional mandate and feels that, in the light of nearly ten years of experience, it would be useful to specify some of the necessary elements of that research program. Therefore, Section 402 lists four elements which the Committee believes that NOAA must include in a research and monitoring program which will be responsive to the major policy questions of the 1980s.

The first element of the program would ensure that NOAA, along with EPA, plays a more active role in developing and evaluating the testing methods utilized by EPA in its ocean dumping permit criteria. NOAA has historically played the role of the "honest broker" in cases such as the 1980 New York Harbor PCB controversy. However, in light of proposed cutbacks in the EPA research program and in light of NOAA's well-established expertise in ocean pollution, the Committee feels that NOAA has a more active role to play in assuring that these testing criteria continue to be refined during the 1980s.

The second element would ensure that NOAA continues studies on the "assimilative capacity" of the oceans. Continued refinement of the assimilative capacity concept is clearly needed if it is ever to be utilized as a model for managing waste disposal in the oceans. The third element is intended to direct NOAA to continue ongoing programs such as the Northeast Monitoring Program (NEMP), which have been threatened by recent budgetary cutbacks. The Committee believes that the value of such programs tends to increase with time and that it would be unwise for NOAA to terminate any of its long-term monitoring programs until future research indicates that new directions are appropriate.

Fourth, NOAA is directed to develop methodologies, techniques and equipment to minimize degradation of the marine environment from dumping. Current ocean dumping and disposal technology is limited to direct dumping by barge or disposal by pipe. This amendment charges NOAA with the responsibility to develop scientific

and/or engineering alternatives to, or improvements on, existing ocean disposal practices.

Section 403 adds two additional activities to EPA's research requirements under section 203 of the MPRSA.

First, the Administrator of EPA, in cooperation with other appropriate Federal, state and local officials, is directed to assess the feasibility of developing regional waste management plans that integrate all waste disposal activities into a comprehensive regional disposal strategy.

Such plans would identify and address applicable Federal, state and local waste disposal actions within a region. They would also identify sources, quantities and types of existing and future waste materials, as well as alternative waste disposal processes. Economic, social, environmental and human health factors affecting the various alternatives would be evaluated and quantified. Finally, the plans would identify improvements in permitting processes, such as regional one-step permitting, that would reduce administrative burdens.

This amendment follows the recommendation of the National Advisory Committee on Oceans and Atmosphere (NACOA). NACOA, in a January 1981 report, urged that the Congress and the Executive Branch adopt an integrated approach to waste management. An integrated approach, to be effective, must consider all alternative means of disposal, in all media, including recycling and improved source control on a regionwide basis. Full knowledge of the various natural and manmade pollutants entering marine waters, air, and land is also necessary. * * *

Section 403 directs NOAA, in cooperation with EPA, to report on the alternative methods of sewage sludge disposal in the New York region. Despite the fact that several Federal agencies and departments have conducted considerable research regarding the environmental effects of waste disposal in various media, no comprehensive cross-media comparison of waste disposal has been attempted. For example, research regarding the effects of ocean disposal of sewage sludge slackened after passage of the 1981 deadline, with the result that the potential effects of such disposal are not well understood. Because of such inadequacies in the research base, it is impossible at the present time to determine whether land or ocean disposal of a given waste would be more threatening to human health and the environment. The Committee feels that cross-media analyses of waste disposal must commence immediately. NOAA is clearly the agency with the greatest expertise in assessing effects of oceanic disposal, and the Committee expects it to take the lead in this area.

Public Law 96–572 authorized the Administrator of the Environmental Protection Agency to conduct a study to assist New York City in evaluating the technological options available for removing heavy metals and toxic organics from the sewage sludge of the City and to reduce the amount of such pollutants entering the sewage system. The study, which was to be completed by July 1, 1981, was never initiated. The issues that were the subject of the study mandated by P.L. 96–572 are integrally related to the cross-media comparison required by this subsection. The Committee, therefore,

fully expects that these issues will be addressed, as appropriate, in the report required by this subsection.

Section 404 contains authorization of appropriations for Title II of the Marine Protection, Research, and Sanctuaries Act for fiscal years 1984 and 1985. The Committee intends that the $12,000,000 authorized for fiscal year 1984 be allocated as follows: $2.5 million for oecan dumping research (Section 201 of P.L. 92-532); $5.0 million for long-term effects research (Section 202 of P.L. 92-532); $1.5 million for Hudson-Raritan studies; $1.1 million for Puget Sound studies; $1.4 million for Section 402 of this Act; and $0.5 million for Section 403 of this Act.

Section 405 amends section 205 of the MPRSA by: (a) redesignating the section as section 204; (b) deleting the directive to the Administrator to evaluate various options for removing toxic materials from the sewage system and sewage sludge of New York City (see additional discussion under section 503); and (c) consolidating all title II reporting requirements into one section.

Section 405 would combine various reporting requirements of the Secretary into one report and directs the Administrator to report on ocean dumping research activities. Current law requires the Secretary of Commerce to report separately to the Congress on findings made under section 201 (dump-site monitoring) and activities taken pursuant to section 202 (long-range effects) including reports required by the Fish and Wildlife Coordination Act (effects of sewage and industrial wastes on wildlife). This section consolidates the various reports into one report.

In addition, section 405 would require the Secretary of Commerce to identify the short-term and long-term research requirements that are needed to meet regulatory responsibilities of title I. Title II research activities should not be undertaken independent of title I regulatory actions. In order to meet the objective of the Act to prevent or strictly limit the dumping into ocean waters of any material which would adversely affect human health, welfare or amenities, or the marine environment, ecological systems, or economic potentialities. EPA and the Corps of Engineers need information that is as complete and timely as possible. The Committee is concerned that the information needed to evaluate ocean dumping permit applications is at times unavailable, and that the research programs authorized under title II are insufficiently tailored to the information requirements of title I. This section is an attempt to correct these shortcomings. The section requires the Secretary to cooperate closely with the Administrator and officials of other appropriate Federal agencies in identifying the research needed to administer title I activities and describing how the research pertaining to titles I and II will meet those requirements.

Title V—Miscellaneous

Title V contains sections which: reauthorize the National Ocean Pollution Planning Act of 1978; reauthorize the Weather Modification Reporting Act; and establish procedures for closing or consolidating National Weather Service facilities.

Section 501 authorizes appropriations of $3,000,000 for each of the fiscal years 1984 and 1985 for the National Ocean Pollution Planning Act of 1978.

Section 502 authorizes appropriations of $100,000 for each of the fiscal years 1984 and 1985 to carry out the provisions of the Weather Modification Reporting Act.

Section 503 would establish objective criteria and orderly procedures for closing and consolidating National Weather Service stations and facilities. The Committee notes that over the past five years, the National Weather Service has proposed the closure of 72 weather stations without consulting communities which would be affected by such closures. As a result, the Congress has refused to allow any of the stations to be closed. Section 503 was drafted in order to minimize the controversy which is generated whenever the National Weather Service proposes to reduce or change its organization or operations.

Subsection 503(a) directs the Secretary of Commerce to provide at least sixty days notice before making a determination to close or consolidate any Weather Service Office or Weather Service Forecast Office.

Subsection 503(b) directs the Secretary to consider the effects on the community, employees or others, as well as the cost-savings, of closing or consolidating a Weather Service Office or Weather Service Forecast Office. Hearings should be held as deemed necessary. This subsection also requires that a written record be kept reflecting all views and information received, and that these documents be reflected in the Secretary's final decision. No action would be taken until sixty days after the written decision is made, with the decision-making process subject to judicial review.

The criteria and procedures in Section 503 are patterned directly upon, and are nearly identical to, those incorporated into the successful system which the Congress adopted in 1977 for closing, consolidating, and opening post offices. The provisions related to post office closures were deemed necessary after the Executive Branch proposed closing approximately 10,000 post offices without consulting affected communities. The Committee feels that the provisions related to post office closures provide a useful model for introducing rationality and public participation into the proposed closure of National Weather Service Offices.

V. Cost and Budget Data

The bill will authorize appropriations in the amounts of $605,569,000 for fiscal year 1984 and $635,847,450 for fiscal year 1985.

In accordance with the requirements of Section 252(b) of the Legislative Reorganization Act of 1970, the Committee notes that this bill is an authorization bill for two years. If the program authorized under this bill remains substantially unchanged during the next five years and the same level of effort is expended, there will be no change in costs other than those occasioned by inflation or Federal salary increases. The Committee notes that there are are several new initiatives contained within the programs authorized in this bill which may require increased funding in future fiscal

years. The amount and timing of any such increases depends upon findings and recommendations that result from the early stages of the program in question. The Committee intends to monitor closely the progress in these areas and to scrutinize carefully any request for substantially increased funding in commensurate fiscal years.

VI. Oversight Findings and Recommendations

Oversight findings and recommendations pursuant to clause 2(1)(3)(A), Rule XI, by the Committee on Science and Technology under the authority of Rule X, clause 2(b)(1) and clause (3)(F), of the Rules of the House of Representatives are incorporated in the recommendations found in the present bill and report.

VII. Congressional Budget Act Information

This bill provides for new authorization rather than new budget authority and consequently the provisions of section 308(a) of the Congressional Budget Act of 1974 are not applicable.

VIII. Congressional Budget Office, Cost Estimate

1. Bill number: H.R. 2900.

2. Bill title: The Atmospheric, Climatic, and Ocean Pollution Act of 1983.

3. Bill status: As ordered reported by the House Committee on Science and Technology, May 10, 1983.

4. Bill purpose: The bill authorizes the appropriation of $609.1 million for fiscal year 1984 and $639.3 million for fiscal year 1985 for the National Oceanic and Atmospheric Administration (NOAA) to administer atmospheric, climatic, and ocean pollution programs. The 1984 authorization represents an increase of $67 million over the $542 million appropriated for these programs for 1983, and exceeds the President's 1984 budget request by $59 million.

H.R. 2900 prohibits the Secretary of Commerce from closing or consolidating any Weather Service Office or Weather Service Forecast Office without allowing a period for public comment prior to issuing a written decision. The Secretary is to consider the effect of closing or consolidation of Weather Service Offices on the community served by the office, employees of the office, and resulting economic savings to the National Weather Service.

5. Estimated cost to the Federal Government:

[By fiscal year, in millions of dollars]

	1984	1985	1986	1987	1988
Authorization level	609.1	639.3			
Estimated outlays	414.2	599.1	190.9	31.4	12.8

The costs of this bill fall within budget function 300.

Basis of estimate: The authorization levels are those stated in the bill, and are assumed to be appropriated in full prior to the start of each fiscal year. Outlays were estimated based on historical spending patterns for these programs.

6. Estimated cost to State and local Governments: None.

7. Estimate comparison: None.

8. Previous CBO estimate: On April 25, 1983, CBO prepared a cost estimate for S. 1100, the National Oceanic and Atmospheric Administration Program Support Authorization Act, that included authorizations of $3 million for each of the fiscal years 1984 and 1985 for the National Ocean Pollution Planning Act (NOPPA) activities. That authorization is identical to the NOPPA authorization in H.R. 2900.

Also on April 25, 1983, CBO prepared a cost estimate for S. 1097, the National Oceanic and Atmospheric Administration Atmospheric and Satellite Program Authorization Act. Included in S. 1097 were authorizations for 1984 appropriations of $75 million for satellite services and $128 million for data and information services. H.R. 2900 authorizes 1984 appropriations of $242 million for satellite and environmental data and information services.

9. Estimate prepared by: Anne Hoffman.

10. Estimate approved by: C.G. Nuckols, (For James L. Blum, Assistant Director for Budget Analysis).

IX. Oversight Findings and Recommendations, Committee on Government Operations

No findings or recommendations on oversight activity pursuant to clause 2(b)(2), Rule X, clause 2(1)(3)(D), Rule XI, of the Rules of the House of Representatives have been submitted by the Committee on Government Operations for inclusion in this report.

X. Oversight Findings and Recommendations, Committee on Science and Technology

No oversight findings and recommendations pursuant to clause 2(1)(3)(A), Rule XI, by the Committee on Science and Technology under the authority of Rule X, clause 2(b)(1) and clause (3)(f), of the Rules of the House of Representatives have been prepared since the convening of the 98th Congress.

XI. Effect of Legislation on Inflation

In accordance with Rule XI, clause 2(1)(4) of the Rules of the House of Representatives, this legislation is assessed to have no adverse inflationary effect on prices and costs in the operation of the national economy.

Expenditures authorized in this legislation are made in support of the research and development and meteorological services programs of the National Oceanic and Atmospheric Administration. The program of research and development supported by this bill produces the valid scientific information and most cost-effective technologies for meeting national priorities in the assessment and management of atmospheric and climate resources. It is the committee's view that in the long run a well-managed program of research and development will result in savings by providing the most economically feasible means to achieve important national goals. Similarly, the Committee views the services supported by this bill, particularly those which are provided directly to the user community by the National Weather Service, as a vital element in

reducing the overall economic costs of the other national programs—in energy, environmental protection, agriculture and transportation, among others—which are supported by those services.

XII. Changes in Existing Law Made by the Bill, as Reported

In compliance with clause 3 of Rule XIII of the Rules of the House of Representatives, changes in existing law made by the bill, as reported, are shown as follows (existing law proposed to be omitted is enclosed in black brackets, new matter is printed in italic, existing law in which no change is proposed is shown in roman):

NATIONAL CLIMATE PROGRAM ACT

* * * * * * *

SEC. 4. DEFINITIONS.

As used in this Act, unless the context otherwise requires:

(1) The term "Board" means the Climate Program Policy Board.

[(1)] *(2)* The term "Office" means the National Climate Program Office.

[(2)] *(3)* The term "Program" means the National Climate Program.

[(3)] *(4)* The term "Secretary" means the Secretary of Commerce.

SEC. 5. NATIONAL CLIMATE PROGRAM.

(a) Establishment.—The President shall establish a National Climate Program in accordance with the provisions, findings and purposes of this Act.

(b) Duties.—The President shall—

(1) promulgate the 5-year plans described in subsection (d)(9);

(2) define the roles in the Program of Federal officers, departments, and agencies, including the Departments of Agriculture, Commerce, Defense, Energy, Interior, State, and Transportation; the Environmental Protection Agency; the National Aeronautics and Space Administration; the Council on Environmental Quality; the National Science Foundation; and the Office of Science and Technology Policy; and

(3) provide for Program coordination.

(c) National Climate Program Office.—*(1)* The Secretary shall establish within the Department of Commerce a National Climate Program Office not later than 30 days after the date of the enactment of this Act. [The Office shall be the lead entity responsible for administering the Program.]

(2) The Office shall—

(A) serve as the lead entity responsible for administering the program,

(B) be headed by a Director who shall represent the Climate Program Policy Board and shall be the spokesman for the program,

(C) serve as the staff for the Board and its supporting committees and working groups,

(D) review each agency budget request transmitted under subsection (9)(1) and submit an analysis of the requests to the Board for its review,

(E) be responsible for coordinating interagency participation in international climate-related activities, and

(F) work with the National Academy of Sciences and other private, academic, State, and local groups in preparing and implementing the climate plan (described in subsection (d)(9)) and the program.

The analysis described in subparagraph (D) shall include an analysis of how each agency's budget request relates to the priorities and goals of the program established pursuant to this Act.

(3) The Secretary may provide, through the Office, financial assistance, in the form of contracts or grant or cooperative agreements, for climate-related activities which are needed to meet the goals and priorities of the program set forth in the climate plan pursuant to subsection (d)(9), if such goals and priorities are not being adequately addressed by any Federal department, agency, or instumentality.

(4) Each Federal officer, employee, department and agency involved in the Program shall cooperate with the Secretary in carrying out the provisions of this Act.

(d) PROGRAM ELEMENTS.—The Program shall include, but not be limited to, the following elements:

(1) assessments of the effect of climate on the natural environment, agricultural production, energy supply and demand, land and water resources, transportation, human health and national security. Such assessments shall be conducted to the maximum extent possible by those Federal agencies having national programs in food, fiber, raw materials, energy, transportation, land and water management, and other such responsibilities, in accordance with existing laws and regulations. Where appropriate such assessments may include recommendations for action;

(2) basic and applied research to improve the understanding of climate processes, natural and man induced, and the social, economic, and political implications of climate change;

(3) methods for improving climate forecasts on a monthly, seasonal, yearly, and longer basis;

(4) global data collection, and monitoring and analysis activities to provide reliable, useful and readily available information on a continuing basis;

(5) systems for the management and active dissemination of climatological data, information and assessments, including mechanisms for consultation with current and potential users;

(6) measures for increasing international cooperation in climate research, monitoring, analysis and data dissemination;

(7) mechanisms for intergovernmental climate-related studies and services including participation by universities, the private sector and others concerned with applied research and advisory services [;]. *Such mechanisms may provide, among others, for the following State and regional services and functions: (A) studies relating to and analyses of climatic effects on agricultural production, water resources, energy needs, and other critical sectors of the economy, (B) atmospneric data collection and*

monitoring on a statewide and regional basis, (C) advice to regional, State, and local government agencies regarding climate-related issues, (D) information to users within the State regarding climate and climatic effects, and (E) information to the Secretary regarding the needs of persons within the State for climate-related services, information, and data. The Secretary may make annual grants to any State or group of States, such grants to be made available to public or private educational institutions, to State agencies, and to other persons or institutions qualified to conduct climate-related studies or provide climate-related services;

(8) experimental climate forecast centers, which shall (A) be responsible for making and routinely updating experimental climate forecasts of a monthly, seasonal, annual, longer nature, based on a variety of experimental techniques; (B) establish procedures to have forecasts reviewed and their accuracy evaluated; and (C) protect against premature reliance on such experimental forecasts; and

(9) a preliminary 5-year plan, to be submitted to the Congress for review and comment, not later than 180 days after the enactment of this Act, and a final 5-year plan to be submitted to the Congress not later than 1 year after the enactment of this Act, that shall be revised and extended [biennially] *at a frequency (not more often than biennially or less often than quadrennially) determined by the Board.* Each plan shall establish the goals and priorities for the Program, including [the intergovernmental program under section 6] *the intergovernmental program described in paragraph (7)* over the subsequent 5-year period, and shall contain details regarding (A) the role of Federal agencies in the programs, (B) Federal funding required to enable the Program to achieve such goals, and (C) Program accomplishments that must be achieved to ensure that Program goals are met within the time frame established by the plan.

(e) CLIMATE PROGRAM POLICY BOARD.—(1) The Secretary shall establish and maintain an interagency Climate Program Policy Board, consisting of representatives of the Federal agencies specified in subsection (b)(2) and any other agency which the Secretary believes should participate in the program.

(2) The Board shall—

(A) be responsible for coordinated planning and progress review for the program,

(B) review all agency and department budget requests related to climate transmitted under subsection (g)(1) and submit a report to the Office of Management and Budget concerning such budget requests,

(C) establish and maintain such interagency groups as the Board determines to be necessary to carry out its activities, and

(D) consult with and seek the advice of users and producers of climate data, information, and services to guide the Board's efforts, keeping the Director, and the Congress advised of such contacts.

(3) The Board biennially shall select a chair from among its members. A Board member who is a representative of an agency may not

serve as chair of the Board for a term if an individual who represented that same agency on the Board served as the Board's chair for the previous term.

(e) ADVISORY COMMITTEE AND INTERAGENCY GROUPS.—(1) The Secretary shall establish and maintain an advisory committee of users and producers of climate data, information and services to advise the Secretary and the Congress on the conduct of the Program. Members of such committee shall not be employed by the Federal Government and may receive compensation at the daily rate for GS–16 of the General Schedule for each day engaged in the actual performance of their duties for the committee and while so serving away from their homes or regular place of business may be allowed travel expenses, including per diem in lieu of subsistence.

(2) The Secretary shall establish and maintain such interagency groups as are necessary and appropriate to assist in carrying out responsibilities under this Act.

(f) COOPERATION.—(1) The program shall be conducted so as to encourage cooperation with, and participation in the Program by, other organizations or agencies involved in related activities. For this purpose the Secretary shall cooperate and participate with other Federal agencies, and foreign, international, and domestic organizations and agencies involved in international or domestic climate-related programs.

(2) The Secretary and the Secretary of State shall cooperate *with the Office* in (A) providing representation at climate-related international meetings and conferences in which the United States participates, and (B) coordinating the activities of the Program with the climate programs of other nations and international agencies and organizations, including the World Meteorological Organization, the International Council of Scientific Unions, the United Nations Environmental Program, the United Nations Educational Scientific, and Cultural Organization, the World Health Organization, and Food and Agriculture Organization.

(g) BUDGETING.—(1) Each Federal agency and department participating in the Program, shall prepare and submit to the Office of Management and Budget, on or before the date of submission of departmental requests for appropriations to the Office of Management and Budget, an annual request for appropriations for the Program for the subsequent fiscal year *and shall transmit a copy of such request to the National Climate Program Office.* The Office of Management and Budget shall review the request for appropriations as an integrated, coherent, multiagency request.

(2) Section 304 of the Act of October 18, 1962 (31 U.S.C. 25) (relating to preparation of horizontal budgets for meteorology), is amended—

(A) by inserting "and of the National Climate Program established under the National Climate Program Act" after "meterology", and

(B) by striking out "aspects of the program" and inserting in lieu thereof "aspects of the programs".

The amendments made by the preceding sentence shall apply with respect to budgets submitted for fiscal years beginning 6 months or more after the date of the enactment of this Act.

[SEC. 6. INTERGOVERNMENTAL CLIMATE PROGRAMS.

[(a) ESTABLISHMENT.—The Secretary shall establish a program for Federal and State cooperative activities in climate studies and advisory services. The Secretary is authorized to make annual grants to any State or group of States, such grants to be made available to public or private educational institutions, to State agencies and to other persons or institutions qualified to conduct climate-related studies or provide climate-related services. Such grants may be made for not more than 50 percent of the costs, in any one year, of the research conducted or services provided under the grant. Federal funds received from other sources shall not be used to pay the remaining share of the cost of such research or services. The Secretary shall work with other appropriate mission agencies in conducting this program.

[(b) DETAIL OF THE INTERGOVERNMENTAL PROGRAM.—The intergovernmental program shall provide, among others, the following State and regional services and functions:

[(1) studies relating to an analyses of climatic effects on agricultural production, water resources, energy needs, and other critical sectors of the economy;

[(2) atmospheric data collection and monitoring on a statewide and regional basis;

[(3) advice to regional, State, and local government agencies regarding climate-related issues;

[(4) information to users within the State regarding climate and climatic effects; and

[(5) information to the Secretary regarding the needs of persons within the State for climate-related services, information and data.

[(c) INTERGOVERNMENTAL PROGRAM REQUIREMENTS.—Prior to making a grant to any State or group of States under this section, the Secretary shall find that—

[(1) the State, or each of the States in group, has adopted a State climate program in accordance with the provisions of this Act and rules and regulations promulgated by the Secretary; and

[(2) the State, or each of the States in a group has—

[(A) integrated its climate program with the Program; and

[(B) established an effective mechanism of consultation and coordination with Federal and local government officials and users within the State.

[The Secretary shall insure that grants made to a State or group of States under this section are made on an equitable basis.]

SEC. 7. ANNUAL REPORT.

The Secretary shall prepare and submit to the President and the authorizing committees of the Congress, not later than [January 30] *March 31* of each year, a report on the activities conducted pursuant to this Act during the preceding fiscal year, including—

(a) a summary of the achievements of the Program during the previous fiscal year;

(b) an analysis of the progress made toward achieving the goals and objectives of the Program;

(c) a copy of the 5-year plan and any changes made in such plan;

(d) a summary of the multiagency budget request for the Program of subsection 5(g); and

(e) any recommendations for additional legislation which may be required to assist in achieving the purposes of the Act.

SEC. 8. CONTRACT AND GRANT AUTHORITY; RECORDS AND AUDITS.

(a) Functions vested in any Federal officer or agency by this Act or under the Program may be exercised through the facilities and personnel of the agency involved or, to the extent provided or approved in advance in appropriation Acts, by other persons or entities under contracts or grant arrangements entered into by such officer or agency.

(b)(1) Each person or entity to which Federal funds are made available under a contract or grant arrangement as authorized by this Act shall keep such records as the Director of the Office shall prescribe, including records which fully disclose the amount and disposition by such person or entity of such funds, the total cost of the activities for which such funds were so made available, the amount of that portion of such cost supplied from other sources, and such other records as will facilitate an effective audit.

(2) The Director of the Office and the Comptroller General of the United States, or any of their duly authorized representatives, shall, until the expiration of 3 years after the completion of the activities (referred to in paragraph (1)) of any person or entity pursuant to any contract or grant arrangement referred to in subsection (a), have access for the purpose of audit and examination to any books, documents, papers, and records of such person or entity which, in the judgment of the Director or the Comptroller General, may be related or pertinent to such contract or grant arrangement.

SEC. 9. AUTHORIZATION FOR APPROPRIATIONS.

(a) GENERAL AUTHORIZATION OF APPROPRIATION.—In addition to any other funds otherwise authorized to be appropriated for the purpose of conducting climate-related programs, there are authorized to be appropriated to the Secretary, for the purpose of carrying out the provisions of this Act, not to exceed $50,000,000 for the fiscal year ending September 30, 1979, and not to exceed $65,000,000 for the fiscal year ending September 30, 1980.

(b) AUTHORIZATION OF APPROPRIATION FOR GRANTS.—There are authorized to be appropriated to the Secretary sums not to exceed $10,000,000 for the fiscal year ending September 30, 1979, and not to exceed $10,000,000 for the fiscal year ending September 30, 1980, as may be necessary for grants under section 6 of this Act, to remain available until expended.

MARINE PROTECTION, RESEARCH, AND SANCTUARIES ACT OF 1972

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SEC. 201. The Secretary of Commerce, in coordination with the Secretary of the Department in which the Coast Guard is operating and with the Administrator shall, within six months of the enactment of this Act, initiate a comprehensive and continuing program

of monitoring and research regarding the effects of the dumping of material into ocean waters or other coastal waters where the tide ebbs and flows or into the Great Lakes or their connecting waters [and shall report from time to time, not less frequently than annually, his findings (including an evaluation of the short-term ecological effects and the social and economic factors involved) to the Congress.]

SEC. 202. (a)*(1)* The Secretary of Commerce, [in consultation] *in close consultation* with other appropriate Federal departments, agencies, and instrumentalities shall, within six months of the enactment of this Act, initiate a comprehensive and continuing program of research with respect to the possible long-range effects of pollution, overfishing, and man-induced changes of ocean ecosystems. In carrying out such research, the Secretary of Commerce shall take into account such factors as existing and proposed international policies affecting oceanic problems, economic considerations involved in both the protection and the use of the oceans, possible alternatives to existing programs, and ways in which the health of the oceans may best be preserved for the benefit of succeeding generations of mankind.

(2) The Secretary shall ensure that the program under this section complements, when appropriate, the activities undertaken pursuant to title I. Such program shall include but not be limited to—

(A) the development and assessment of scientific techniques to define and quantify the degradation of the marine environment;

(B) the assessment of the ability of the marine environment to assimilate materials without degradation;

(C) continuing monitoring programs to assess the health of the marine environment, including but not limited to the monitoring of bottom oxygen concentrations, contaminant levels in biota, sediments, and the water column, diseases in fish and shellfish, and changes in types and abundance of indicator species; and

(D) the development of methodologies, techniques, and equipment for disposal of waste materials to minimize degradation of the marine environment.

(b) In carrying out his responsibilities under this section, the Secretary of Commerce, under the foreign policy guidance of the President and pursuant to international agreements and treaties made by the President with the advice and consent of the Senate, may act alone or in conjunction with any other nation or group of nations, and shall make known the results of his activities by such channels of communication as may appear appropriate.

[(c) In March of each year, the Secretary of Commerce shall report to the Congress on the results of activities undertaken by him pursuant to this section during the previous fiscal year. The Secretary shall include in this report the report to Congress of activities of the Department of Commerce under section 5 of the Act of March 10, 1934 (48 Stat. 401; 16 U.S.C. 665), required by that section.]

[(d)] *(c)* Each department, agency, and independent instrumentality of the Federal Government is authorized and directed to cooperate with the Secretary of Commerce in carrying out the pur-

poses of this section and, to the extent permitted by law, to furnish such information as may be requested.

[(e)] *(d)* The Secretary of Commerce, in carrying out his responsibilities under this section, shall, to the extent feasible utilize the personnel, services, and facilities of other Federal departments, agencies, and instrumentalities (including those of the Coast Guard for monitoring purposes), and is authorized to enter into appropriate inter-agency agreements to accomplish this action.

SEC. 203.

(a) The Administrator of the Environmental Protection Agency shall—

(1) conduct research, investigations, experiments, training, demonstrations, surveys, and studies for the purpose of—

(A) determining means of minimizing or ending, as soon as possible after October 6, 1980, the dumping into ocean waters, or waters described in section 101(b) of this title, of material which may unreasonably degrade or endanger human health, welfare, or amenities, or the marine environment, ecological systems, or economic potentialities, and

(B) developing disposal methods as alternatives to the dumping described in subparagraph (A); and

(2) encourage, cooperate with, promote the coordination of, and render financial and other assistance to appropriate public authorities, agencies, and institutions (whether Federal, State, interstate, or local) and appropriate private agencies, institutions, and individuals in the conduct of research and other activities described in paragraph (1).

(b) Nothing in this section shall be construed to affect in any way the December 31, 1981, termination date, established in section 102a of this title, for the ocean dumping of sewage sludge.

(c) The Administrator, in cooperation with the Secretary, the Secretary of Commerce, and other officials of appropriate Federal, State, and local agencies, shall assess the feasibility of regional management plans for the disposal of waste materials. Such plans should integrate where appropriate Federal, State, regional, and local waste disposal activities into a comprehensive regional disposal strategy. These plans should address, among other things—

(1) the sources, quantities, and types of materials that require and will require disposal;

(2) the environmental, economic, social, and human health factors associated with disposal alternatives;

(3) the improvements in production processes, methods of disposal, and recycling to reduce the adverse effects associated with such disposal alternatives;

(4) the applicable laws governing waste disposal; and

(5) improvements in permitting processes to reduce administrative burdens.

(d) The Administrator, in cooperation with the Administrator of the National Oceanic and Atmospheric Administration, shall submit to the Congress and the President, not later than one year after the date of enactment of this provision, a report on sewage sludge disposal in the New York region. The report shall consider

the factors listed in subsection (c) as they relate to landfilling, incineration, and ocean dumping; shall include a cost-benefit comparison of these three alternatives; and shall recommend such regulatroy or legislative changes as may be necessary to reduce the adverse impacts associated with sewage sludge disposal.

[SEC. 205. The Administrator of the Environmental Protection Agency is authorized to conduct a study to assist the city of New York in evaluating the technological options available for the removal of heavy metals and other toxic organic materials from the sewage sludge of the city of New York. The study shall also examine options available to reduce the amount of such pollutants entering the sewage system. The study is to be completed by July 1, 1981.]

SEC 204. (a) In March of each year, the Secretary of Commerce shall report to the Congress on his activities under this title during the previous fiscal year. The report shall include—

(1) the Secretary's findings made under section 201, including an evaluation of the short-term ecological effects and the social and economic factors involved with the dumping involved;

(2) the results of activities undertaken pursuant to section 202;

(3) with the concurrence of the Administrator and after consulting with other apprpriate Federal agencies, and identification of the short- and long-term research requirements associated with activities under title I, and a description of how Federal research under titles I and II will meet those requirements; and

(4) activities of the Department of Commerce under section 5 of the Act of March 10, 1934 (48 Stat. 401; 16 U.S.C. 665).

(b) In March of each year, the Administrator shall report to the Congress on his activities during the previous fiscal year under section 203 of the Marine Protection, Research, and Sanctuaries Act of 1972 (33 U.S.C. 1443).

Section [204] *205.* Authorization of appropriations

There are authorized to be appropriated for the first fiscal year after October 23, 1972, and for the next two fiscal years thereafter such sums as may be necessary to carry out this subchapter, but the sums appropriated for any such fiscal year may not exceed $6,000,000. There are authorized to be appropriated not to exceed $1,500,000 for the transition period (July 1 through September 30, 1976), not to exceed $5,600,000 for fiscal year 1977, not to exceed $6,500,000 for fiscal year 1978, and not to exceed $11,396,000 for fiscal year 1981, [and] not to exceed $12,000,000 for fiscal year 1982, *and not to exceed $12,000,000 for each of fiscal years 1984 and not to exceed $12,600,000 in fiscal year 1985.*

NATIONAL OCEAN POLLUTION PLANNING ACT OF 1978

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SEC. 10. AUTHORIZATION OF APPROPRIATIONS

There are authorized to be appropriated to the Administration for the purposes of carrying out this chapter not to exceed $5,000,000 for the fiscal year ending September 30, 1979, not to

exceed $4,300,000 for the fiscal year ending September 30, 1980, not to exceed $3,000,000 for the fiscal year ending September 30, 1981, [and] not to exceed $4,000,000 for the fiscal year ending September 30, [1982.] *1982, and not to exceed $3,000,000 for each of the fiscal years 1984 and 1985.*

XIII. Committee Recommendations

The Committee favorably reported the bill H.R. 2900 by voice vote, a quorum being present, and recommends its enactment.

XIV. MINORITY VIEWS

The Minority members of the Science and Technology Committee find it necessary to oppose the committee bill, due to the funding level of $605.6 million, which is nearly $60 million above the amount requested by the President, and due to the two-year authorization.

As our nation begins to come out of the recession, we must continue to hold the line on federal spending. Large and unwarranted increases in federal spending at this point could considerably undermine our progress toward full economic recovery. It has taken us almost three years to combat the upward spiral of inflation and other economic woes that plague our nation, so at this time we cannot support the large increase contained in the committee bill.

We feel we offered a fiscally prudent, technically sound research budget for NOAA as a substitute to an elevated version. We felt that this was an appropriate middle ground and we are sorry our alternative did not receive bipartisan support.

The Minority substitute provided for a budget of $584.1 million which is $35.8 million over the request. Under the substitute, funding was restored for some of NOAA's most cost effective programs. Among these were the agricultural weather and fruit frost warning services, long term R&D in the National Weather Service, weather modification research, a second polar orbiting weather satellite, and marine pollution research.

There are several program areas where the Minority and Majority are in agreement. These include marine ecosystem research and analysis, the necessity for a strong ocean pollution and ocean dumping research program, and the weather service functions of NOAA. The alternative budget, offered by the Minority, supported these programs which the Majority and Minority agree on, and did so at a level of increased yet reasonable funding.

The Minority members are unanimous in their support for NOAA's mandate. Nevertheless, we feel that the agency could accomplish its objectives in fiscal 1984 with funding which is significantly below that provided in the Committee bill.

LARRY WINN, JR.
MANUEL LUJAN, JR.
ROBERT S. WALKER.
WILLIAM CARNEY.
F. JAMES SENSENBRENNER, JR.
JUDD GREGG.
RAYMOND J. MCGRATH.
JOE SKEEN.
CLAUDINE SCHNEIDER.
BILL LOWERY.
ROD CHANDLER.
HERBERT H. BATEMAN.
SHERWOOD L. BOEHLERT.
ALFRED A. MCCANDLESS.

XV. ADDITIONAL VIEWS ON NOAA AUTHORIZATION

HONORABLE TOM LEWIS

I strongly support the Committee's decision to fully fund the agricultural weather service and in particular the fruit frost warning program operating at Ruskin, Florida. This program is of vital importance to growers in my State of Florida.

Florida ranks first worldwide in citrus production, and second nationwide in commercial nurseries and winter vegetable production. Florida alone furnishes 50 to 60 percent of the Nation's fresh vegetable needs during the winter.

Agriculture is a $12 billion industry in Florida—the second largest industry in the State. Florida agriculture employes 112,000 on-farm workers and thousands off-farm workers who process, package and market these goods.

Farmers statewide have relied on the Ruskin weather station for up-to-date and accurate reports on approaching cold fronts and storms around the clock. This information is critical during the main growing season—November to March. And the acreage of land involved is massive—850,000 acres of citrus; 400,000 acres of vegetables; 350,000 acres of sugar cane and 150,000 of commercial nurseries.

Growers cannot take chances. The availability of around-the clock forecasting prevents unnecessary utilization of costly precautions to minimize freeze damage. This could mean millions of dollars in savings both to the industry and related services, and to the consumer.

Furthermore, the Ruskin facility utilizes the most technologically advanced equipment to insure accuracy of weather reporting. To eliminate the NOAA-operated fruit frost warning program as the Administration proposed in its original budget request, forces Florida farmers to subscribe to private forecasting firms for weather information.

I strongly oppose asking the agricultural community to pay for a structural change in the delivery of vital information when no one knows if these services can be adequately duplicated. The Subcommittee on Natural Resources, Agricultural Research and the Environment, on which I serve, held hearings in West Palm Beach to hear testimony from large and small-scale farmers and from a private firm now providing basic weather information to paying subscribers. It was clear from their testimony that the large-scale farmer could more easily support the fees, while the small-scale farmer would have to forego this service and therefore risk losing his entire crop and livelihood.

In addition, it is well known that the services currently available through private weather forecasting firms are far inferior in accuracy and clearly limited in availability. In fact, the representative

of the private firm was a strong advocate for continuing the Ruskin program.

The costs to continue the Ruskin program—$160,000—the charge quoted by private firms to citrus growers alone is staggering—$120,000 for just the five-month Florida freeze period. This fee does not include 24-hour service during the hurricane and tornado seasons, nor does it include the additional costs for making the information available to vegetable growers and commercial nurserymen.

Therefore, while I support the Administration's efforts to reduce excessively high budget deficits and support their efforts to halt the growth of federal spending, clearly this is a program that more than pays for itself in terms of both savings to producers and consumers of vital agricultural products.

TOM LEWIS.